CLINICAL REPORT

ON

DYSENTERY,

BASED ON

AN ANALYSIS OF FORTY-NINE CASES.

WITH

Remarks on the Causation, Pathology and Management of the Disease.

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"C'est en interrogeant fréquemment la nature que nous lui arrachons ses secrets."

BUFFALO:

PRINTED BY JEWETT, THOMAS & CO.

1853.

PREFACE.

The Clinical Report and Supplement, which compose this little volume, originally appeared in the Buffalo Medical Journal, Nos. for July, August, September, and October, 1853. They are submitted to the medical profession in this form with the hope that they may prove acceptable to some who are not readers of the periodical just named.

The *clinical report*, as stated in the title page, embraces the results of the analysis of forty-nine recorded cases of dysentery occurring under the author's observation. The *supplement* consists of remarks on the causation, pathology, and management of the disease, preceded by the description of the post-mortem appearances given by Dr. Carl Rokitansky, in his treatise on pathological anatomy.

For convenience of reference, the pages occupied by different portions of the work are indicated in the *table of contents*.

Buffalo, September, 1853.

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CLINICAL REPORT.

Among the notes that I have collected of diseases occurring in private and hospital practice, are embraced histories, more or less complete, of sixty cases of dysentery. On examination of these cases with a view to analysis, eleven were rejected in consequence of the patients having come under observation quite late in the progress of the disease, and the records being very imperfect. In two of these rejected cases the issue was fatal; in the others, either recovery took place, or the disease continued when the patient passed from under my observation. The residue of cases, after this elimination, amounted to forty-nine. These cases I have subjected to analysis. Taking up the several histories in succession, every thing noted in each history relating to the objects of inquiry contained in a series of sections, has been selected and arranged, each in the particular section to which it appropriately belongs. The sections are as follows:

1. Name. Age. Sex. Occupation. Season and year. Previous health and constitution. Duration of disease before coming under observation.
2. Circumstances attending the access of the disease.
3. Symptoms referable to the Digestive System.
4. Symptoms referable to the Circulatory System.
5. Symptoms referable to the Nervous System.
6. Symptoms referable to the Skin.
7. Symptoms referable to the Respiratory System.
8. Duration of disease to death or convalescence. Mode of dying. Relapses. Fatality.
9. Supposed causative agencies.
10. Subsequent health. Recurrence of the disease.
11. Treatment, and immediate (apparent) effect of remedies.

With the facts before me distributed after the foregoing sectional arrangement, I shall proceed to interrogate them in order to ascertain what deductions may be drawn therefrom bearing on the natural history, pathology, causation, and management of the disease. The object of this report is to present the results of such an investigation. What these results may be, whether of much, or little interest and value, cannot be foreseen at this stage of the investigation, notwithstanding the familiarity with the details of the histories which is incident to the labor of transcribing them in making the preliminary analysis. Of this truth every one who has practiced similar analytical inquiries must be convinced. Were it at all necessary, the truth might be cited as conclusive evidence of the small value of even recorded, and still more of mere recollected experience, in contrast with the fruits of the study, by means of enumeration and comparison, of observations which have been accurately made, and carefully noted. The importance of what is distinguished as the numerical method of investigation has come, at length, to be very generally acknowledged. It is now admitted by most of those whose opinions are entitled to consideration, that, in the present state of medical science, we must mainly rely upon the results thus acquired as the basis of our knowledge of the laws of disease, of the events which make up their individuality, of their diagnostic characters, and, to a greater or less extent, of the effects of remedies. But the extent of the fallacies incident to reasoning from isolated cases, and to the general impressions drawn from what the memory retains of clinical experience, can best be appreciated by those who have tested the unreliability of their own opinions, thus formed, by submitting to the analytical process, cases which they have themselves recorded. All who have had any practical acquaintance with this process, have doubtless been taken by surprise at some of the conclusions to which they have been led by it. And when we reflect upon the natural operation of the mind in the effort to generalize facts as they are irregularly and promiscuously presented in medical practice, trusting to the memory alone, the liability to error is by no means to be wondered at. To suppose that a practitioner of medicine will witness the phenomena of the diseases which he is required to treat, without indulging in speculative inquiries respecting them, is absurd. Such a supposition is not admissible. He will, and indeed must of necessity form, or adopt some theoretical notions of their character, causes, and of the best mode of managing them. He may honestly desire to try these notions faithfully by his experience, but it is plain he is not in the attitude of an unbiased seeker after the truth; and under the influence of his preconceptions the chances are many that his attention and memory

will be occupied with facts which favor, to the exclusion of those which militate against these preconceptions. The results of this sort of experience are, in reality, apt to be altogether predetermined in the mind of the observer, and they prove just what it was expected they would, in consequence of this expectation. In view of the circumstances under which clinical observations are usually made, there can be no adequate security against hasty and illogical generalizations save in the accumulation of registered facts, and the analytical study of them; and when it is considered that not an inconsiderable share of past medical doctrines are only opinions based on the fallacious kind of experience just adverted to, it is not surprising that a host of traditionary errors are to be corrected by a more exact and logical method of investigation than has heretofore been pursued.

The limitations, and the liabilities to error in the prosecution of statistical researches, on the other hand, are not to be overlooked. The numerical method is not infallible, more than omnipotent. Its sphere of application is circumscribed. Its management affords scope for judgment and skill, and it may, therefore, be perverted. It does not consist wholly in arithmetical calculations. Its office is to supply data for ratiocination, and hence wrong inferences may be drawn from deductions which, abstractly considered, are accurate. It is by no means designed to supersede other methods of study. It does not conflict with the labors of the microscopist, or of the chemical analyst, nor does it oppose, but only imposes a salutary check on efforts to discover the occult principles of disease, and to trace synthetically their connection with pathological phenomena. Indeed, it may be said to prepare the way for the latter, by narrowing the field of inquiry, and giving the proper direction to such investigations.

The introduction of the numerical method into the study of medicine is so recent, and the labor required in its prosecution is so great, that it would be far easier to enumerate diseases to which it has as yet hardly been applied, than to designate those concerning which all the information to be derived from this source has been exhausted. In the former category *dysentery* is to be included. Much as has been written on this disease, there are many questions pertaining to its symptomatology, etiology, pathology, and treatment, which can only be answered satisfactorily by means of statistical researches. The design of the writer of the present report, is to furnish a small contribution of facts and deductions bearing on some of these questions. The number of histories collected is not large, but they are sufficient to analyze in order at least that the results may be brought into comparison with those educed from other collections. With a view to such comparisons, as the

writer has suggested and illustrated in another connection,* the plan of subjecting to analytical investigation, at different times, different series of cases, is preferable to waiting for a larger number, and embracing them all in a single analysis. Moreover, to procrastinate in labors of this kind is of course to incur the risk of their being never entered on—a risk enhanced by the increase of the task in proportion to the greater accumulation of cases.

It is proper to premise, what the critical reader will be at no loss to detect, that the histories in some particulars are uniformly defective, and that with respect to several points many are less complete than could be desired. In so far as positive or negative particulars are wanting, will, of course, the results of the analysis be limited. It is, however, one of the advantages of this method of investigating clinical observations, that, provided accuracy be observed in what is recorded, any deficiency in details in no degree vitiates the whole analysis. It is not less reliable on this account, carried as far as the data warrant. The only effect is to restrict the range of numerical research.

As already implied, in the *forty-nine* cases upon the analysis of which this report is based, are embraced only cases of acute dysentery, cases of the chronic form of the disease being excluded.

In eleven of the forty-nine cases the disease proved fatal. I may state here that the histories of all the fatal cases of dysentery treated by me in public or private practice, it is believed are embraced in this collection.† In every instance in which cases have passed under my observation without being recorded the patients have recovered.

SECTION FIRST.

Age. Sex. Occupation. Season and year. Previous health and constitution. Duration of disease before coming under observation.

Age. The ages, noted in forty-four cases, were between forty-eight and four years. Selecting several cases nearest each extreme, the ages respectively were as follows:

Of the ages nearest the maximum, 48, one case; 46, one case; 45, one case; 40, one case; 38, two cases; 35, four cases.

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* Clinical Reports on Continued Fever.

† *i. e.* including the eleven rejected cases referred to on page 9.

Of those nearest the minimum, 4, one case; 5, one case; 7, two cases; 8, one case; 10, one case; 11, one case; 18, one case; 19, four cases.

The mean age in the forty-four cases, is a fraction over 25 years.

It thus appears that, of the forty-four cases, in thirty the ages were between thirty-five and nineteen years. So far as these statistics go, they point to the period of life embraced between these years as that in which there exists the greatest liability to become attacked with dysentery, although other ages are not exempt.

The average age in ten of the eleven cases which proved fatal, is a fraction over 27 years.

Sex. Of forty-three cases the number of males was twenty-four; of females, nineteen.

The fatal cases were distributed as equally as possible between the two sexes, viz., five males and six females. This, it will be noticed, gives a much larger fatality, proportionate to the number of cases, among the female, than the male patients.

Occupation. The occupations, in eighteen cases in which the records contain information on this point, were various. Females and children are of course excluded from this enumeration. Six were laborers, two were seamen; and of the following list, each occupation was represented by a single case: tinsmith, barber, tailor, farmer, currier, truckman, cigar maker, sail maker, overseer, editor, merchant.

Season and year. An enumeration of the cases which occurred in different months gives results which illustrate in a striking manner the decided predilection of the disease for a portion of the year. Of the forty-four cases, six were in July, seventeen were in August, nineteen were in September, and five in October, making the whole number of cases save one. The single remaining case was in March. None of the cases, thus, were in January, February, April, May, June, November and December. This law of the disease is of importance in its bearing on the subject of the causation of the disease.

As respects the prevalence of the disease in different years, the dates of the cases possess interest. Of the forty-nine cases, twelve occurred between 1838 and 1849; twenty-six in 1849, and the remaining eleven in 1850, 1851 and 1852. These results require some comment. It will be observed that up to 1849, for a period of eleven years, I collected only twelve histories. This number does not comprise all the cases treated by me during that

pe i od. It does, however, represent a fact which, in connection with these enumerations, is one of importance, viz: that during these years dysentery rarely occurred in this city. It did not prevail in any year as an epidemic, and sporadic cases were quite infrequent. This is stated as a matter of recollection; but inasmuch as during that whole period I was accustomed to make notes of cases occurring in practice, to a greater or less extent, I am certain that my records would have furnished a greater number of histories had the disease not been one of rare occurrence. It is proper to add, that, during this period, my opportunities for clinical observation in private practice were not small, and that for five years, in addition to private practice, I attended the County Almshouse, and the sick poor maintained at their homes at the public expense. The Buffalo Hospital of the Sisters of Charity was instituted in the summer of 1848, and in November of that year, sixty patients had been received. But a single case of dysentery was received from the time it was opened, to January, 1849. In the summer of 1849, when more than half of the cases embraced in this collection occurred, epidemic cholera prevailed to a great extent in this city. It appeared on the 30th of May, and ceased to prevail as an epidemic in the early part of the September following. The number of deaths from cholera during the three months intervening between the above dates, according to the reports made to the board of health, amounted to 2,501. In the month of September of that year, dysentery prevailed to a considerable extent. Fourteen of the twenty-six cases observed in 1849, were received at the Hospital of the Sisters of Charity in that, and the following months. The facts, as thus far considered, seem to authorize the presumption of some relationship between epidemic cholera and dysentery. Taking into view the remarkable immunity of this locality from the latter affection, even in its sporadic form, for a series of years prior to the year in which cholera prevailed, and its development in such close proximity to that epidemic, it would be reasonable to suspect that some elements involved in the genesis of these two diseases were common to both. The significance of statistical comparisons, indeed, might seem to be exemplified by such an inference. If, now, the attention be directed to the prevalence of dysentery in the years subsequent to 1849, it will be apparent that no essential connection is proved to exist between this disease and cholera. In 1850, 1851 and 1852, a small number of histories were collected. This is in a measure owing to the fact that after 1849 I ceased to attend at the hospital during the summer months, and I did not keep notes of all the cases occurring in private practice. On reference, however, to the hospital register during these years, I find that in the months of July,

August, and September, of 1850, seventeen cases were received; in 1851, during the same months, six cases, and in 1852, for the same period, but a single case. Unfortunately for accuracy, in the hospital register for 1852, there are some omissions in the list of diseases, so that more than a single case may have been received; but that cases of dysentery were considerably less frequent in this year than in the two preceding years, is certain. This fact is all that concerns the present purpose, which is to compare the prevalence of this disease with cholera. In 1850 and 1851, cholera did not prevail to much extent, as an epidemic, in Buffalo. Cases occurred, now and then, in the course of the summer. Dysentery prevailed, but far less than in 1849. But in 1852 this city was again visited with a cholera epidemic attended by a fatality not less than in 1849. This season, however, was not again signalized by the prevalence of dysentery, cases of the latter disease being more infrequent than during the two preceding years when cholera prevailed but to a limited extent. It is thus seen, by extending statistical inquiries over the several years succeeding the season rendered memorable in this city by the occurrence of both cholera and dysentery in an epidemic form, that we are warranted in regarding the association of the two diseases only in the light of a coincidence. A survey of all the facts just presented, fails to establish any community in the causation of the two affections.

The liability to err in consequence of a limited range of statistical investigation is illustrated by the inference which accords with the results deduced from the analysis up to 1849 inclusive; and, on the other hand, the different conclusion arrived at by embracing the facts pertaining to subsequent years, affords an instance of the value of this method of determining truth.

In conclusion, it may be remarked, that in failing to discover in the facts before us any evidence of a connection between cholera and dysentery, so far as their origin is concerned, it is by no means implied that the latter affection may not receive important modifications from the association of the pathological conditions involved in both. This is a question which pertains to other branches of the investigation.

Constitution and previous health. Information on these points is contained in twenty-five histories. In twelve of these it is stated that the constitution and previous health were good. In thirteen cases it was otherwise. The facts pertaining to the subject in the latter cases respectively, and the issue of each case, are as follows:

No. 1. Labored under anæmia and spinal irritation incident to lactation, and had had hysterical convulsions two months previous. Recovered.

No. 2. A feeble woman, pallid, thin, had had delicate health for some time, and shortly afterward became affected with tuberculosis. Recovered.

No. 3. A dyspeptic. Recovered.

No. 4. A child four years of age. Had had several attacks of catarrhal croup, and during the previous summer had suffered from diarrhœa. Recovered.

No. 5. Been in delicate health for several years. A female lately married. Had hysteria shortly before the attack. Fatal.

No. 6. Subject to dyspeptic disorders. Recovered.

No. 7. Subject to hysteria. Recovered.

No. 8. A female aged about 28. Had presented evidences of scrofula. Recovered.

No. 9. Was recovering from subacute arthritis affecting the knee joint, which had confined him to the bed for several weeks, prior to the time he was attacked. Recovered.

No. 10. Had recently had epidemic cholera. Attacked eleven days after date of convalescence from that disease. Recovered.

No. 11. Had been in hospital four weeks before for intermittent fever and neuralgia, and was not fully recovered at the time of attack. Recovered.

No. 12. Had an attack of diarrhœa three months before, and in the mean time several recurrent attacks occurred. Recovered.

No. 13. Health delicate for one or two years before. Disordered menstruation, and spinal irritation. Fatal.

From the foregoing facts it may be deduced, *first*, that, of a given number of cases, in at least one half, the constitution and previous health are good. *Second*, that there is no uniformity in character as respects the antecedent affections, or the disordered health. *Third*, that the constitution and previous health being impaired does not affect in a striking degree the prospect of recovery.

Duration of disease before coming under observation. The facts falling under this head are important only as showing to what extent the cases were under the personal observation of the reporter.

Of forty-three cases, in the histories of which the previous duration of the disease is noted, in twenty-seven the patients came under observation from the commencement, or so soon as the symptoms became sufficiently urgent to induce them to apply for medical aid. In sixteen cases the disease had existed for a greater or less period. The latter were, for the most part, hospital cases. Of these cases the disease had existed in two, two days; in four,

three days; in one, four days; in two, five days; in one, six days; in four, seven days, and in two cases the disease had nearly advanced to convalescence, the patients being under treatment at the hospital at the time of commencing my term of service.

SECTION SECOND.

Circumstances attending the access of the disease.

By the circumstances attending the access, it is intended to refer to symptoms occurring before the nature of the disease was determinable. The characteristic evacuations, *i. e.* blood and mucus, generally, or the latter alone, constitute the evidence of the existence of dysentery. Until these diagnostic criteria are observable, the affection has not become fully developed. This statement may not be correct in a strict pathological sense; but whether it be, or be not true is of no consequence so far as concerns present inquiries. It is plain that, practically, no other course can be pursued. The precedence of ordinary diarrhœa is almost the only point connected with the access on which the histories contain any information. The facts with respect to this point in thirty-three cases were noted. Of these thirty-three cases, diarrhœa preceded the occurrence of dysenteric discharges, for a greater or less period, in thirty cases, and the characteristics of dysentery were stated to have been manifested at the commencement of illness in only three cases.

The duration of the antecedent diarrhœa was ascertained in twenty-seven cases. In four cases the dysenteric discharges appeared within twenty-four hours from the time that the patients were attacked with diarrhœa. They made their appearance on the second day in eleven cases; on the third day in five cases; on the fourth day in three cases; on the fifth day in one case; on the seventh day in one case, and in two cases it is recorded that several days intervened.

In several instances the preliminary diarrhœa occurred at night. The dysenteric characters, also, in several cases first occurred during the night.

Of the fatal cases, the facts with respect to antecedent diarrhœa are noted in six only. In each of these cases diarrhœa preceded; in one case for twelve hours, in one case for one day, in two cases for two days, in one case for three days, and in one case the duration was not ascertained.

Diarrhœa is the only event of importance noted in most of the histories to have attended the development of the disease.

SECTION THIRD.

Symptoms referable to the digestive system.

Alvine dejections. The discharges from the bowels, of course, in all the cases, were abnormally frequent, and presented, during the progress of the disease, blood and mucus, more or less in quantity. The appearances, however, were not uniform. Considerable differences existed in the different cases, and often in the same case at different times. The more important of the varieties, so far as concerns the characters peculiar to dysentery, may be distributed in the following classes:

1. Mucus, usually more or less commingled with blood, the quantity expelled, at a time, generally small, but occasionally more abundant, forming a jelly-like mass.
2. Fibrinous laminæ, or small flakes distinguished by their firmness and opacity; often more or less tinged with blood, occasionally having a greenish tint; varying in quantity, but generally more copious than the former.
3. Puruloid matter. This was observed in a very few instances only.
4. Sero-sanguinolent fluid; oftener copious, than small in quantity.

The foregoing forms of dysenteric discharges were frequently more or less combined, or appeared in succession, and sometimes in alternation in the same case. Evacuations often consisted wholly of these morbid products. Sometimes they were mixed with fecal matter, the latter presenting various appearances, and in several instances, during the progress of the disease, dejections entirely fecal, and more or less abundant, took place, and were followed by discharges with the dysenteric characters not less than before. Feces in small solid lumps, (scybala,) were noticed but in a few instances. The feculent discharges varied in consistence and color, being sometimes green, in other instances yellow, and occasionally brown. Several times consistent moulded feces were evacuated, preceded and followed by dysenteric discharges. In the proportionate quantity of fecal matter, as well as in the infrequency of its appearance in the discharges, different cases differed greatly.

Occasionally small dejections entirely hemorrhagic occurred, taking place immediately, or shortly after discharges of a different character, the blood evidently escaping from the vessels of the rectum near the anus.

This is a brief summary of the diseased appearances which the alvine dejections presented. To determine the numerical ratio which these appearances severally bore to each other, would not subserve any useful end, and, moreover, it would be impossible from the data contained in the histories, inasmuch as the precise number of evacuations, with their characters individually were in no instance fully recorded.

The chief point of interest pertaining to the variations in the evacuations from the bowels, aside from the importance which belongs to these symptoms as elements of the natural history of the disease, is this: — what pathological significance is to be attached to them respectively? With respect to this inquiry, an examination of the facts relating to the subject points to certain conclusions.

1. The frequency of the dejections is no criterion of the gravity and danger of the disease. In this particular the cases differed greatly, evacuations occurring in some instances hourly, or even half-hourly, and in other instances several hours intervening between them. Cases also differed in this respect at different times in the progress of the disease. In the case in which the largest number, (sixty,) of dejections were noted to have occurred in the course of twenty-four hours, recovery took place; and, as it happens, also, in a case in which there were as small a number throughout the disease as in any other, the issue was fatal. The average number of dejections in the fatal cases would fall short of the average number in the cases which ended in recovery.

2. Fibrinous *laminæ*, or flakes, occurred generally in the fatal cases, and this character was oftener present in severe, than in mild cases.

3. Other things being equal, cases appeared to be grave in proportion to the copiousness of the discharges having the character just referred to, and with a proportionably small quantity of fecal matter.

4. The sero-sanguinolent discharge indicates, more than any other kind of evacuation, gravity and danger, and its significance is proportionate to the quantity expelled. This character of dejection occurred in nearly all the fatal cases, and in but a small proportion of those in which recovery took place. To enumerate with respect to this fact, eight of the eleven fatal cases were characterized by the evacuation of a sero-sanguinolent liquid in greater or less abundance, while in only four of the remaining thirty-eight cases is this kind of dejection noted, and in these four cases the quantity was not large. By the sero-sanguinolent discharge I mean a thin, bloody fluid, compared by writers to the appearance of water in which meat has been washed,

(lotura carnium.) The effect of a copious sero-sanguinolent evacuation as indicated by the pulse was strikingly illustrated in one of the cases. At 9½, P. M., in this case, the pulse numbered 120; at 11½, P. M., a copious sero-sanguinolent dejection having in the mean time taken place, the pulse had risen to 135.

5. The morbid appearances pertaining to the alvine dejections, may be slight in cases in which the general symptoms denote great gravity, and which end fatally. This fact was strikingly exemplified in a case in which the dejections at no time contained more than a small amount of blood and mucus, and were never frequent, averaging only four or five in the twenty-four hours. In this case, the dejections for several days prior to the day before death, were entirely free from any of the dysenteric characters. This was one of the cases occurring in 1849, when epidemic cholera prevailed to a considerable extent. The discharges, however, did not present the choleraic characters. No case of this description was observed when cholera did not prevail, and in farther support of the supposition that the disease in these cases derives its severity and fatality from the combination of the unknown internal pathological condition which obtains in cholera, with the dysenteric affection, it may be mentioned that during the prevalence of the former, cases occasionally occur in which the state of collapse and death by asthenia take place when the dejections are free both from the choleraic and dysenteric sensible characters. A few such cases have fallen under my observation, during the prevalence of cholera, and at no other time.

The occurrence of sero-sanguinolent dejections, also, it may be suspected, had some connection with the prevalence of cholera. In not one of the twelve cases collected prior to 1849, was this symptom noted, but it occurred in some of the cases in 1850 and 1851, when cholera prevailed only to a small extent. It is probable that this feature of dysentery is oftener present when the disease prevails as an epidemic than in sporadic cases. With reference to these points a larger number of observations is desirable.

The examination of the alvine dejections in all the cases recorded, was limited to the gross appearances. A series of observations with the aid of chemical analysis and the microscope, would doubtless be interesting, and might possibly lead to important pathological deductions.

Tormina and tenesmus. These symptoms were generally present, but in the degree of suffering therefrom, the cases differed considerably. Their prominence was not in proportion to the gravity of the disease. On the contrary, they were most marked in cases which, so far as regards the indications

of danger were mild.* In the majority of the fatal cases they had little prominence, and, indeed, in some cases among those characterized by serosanguinolent discharges, they were scarcely present. This is the only point of interest developed by an examination of the facts pertaining to these symptoms which the histories contain.

Vomiting. This symptom is noted in the histories of several cases, and in the remainder nothing is stated respecting its presence or absence. It may have occurred in more or less of these cases, but could not have been prominent. The number of cases in which it is noted to have occurred, is twelve. In most of these cases it was not very prominent, that is to say it was not urgent and persisting. So far as we may judge from this collection of cases, vomiting does not occur in a notable degree in the majority of cases of dysentery. It occurs oftener, and is more marked, in cases distinguished for their gravity. Thus of the twelve cases in which it is noted to have occurred, six were fatal cases. This is relatively a large proportion comparing the number of fatal cases, (eleven,) with the number of those ending in recovery, (thirty eight.) Making due allowance for incompleteness of the histories as respects this symptom, the statement just made seems admissible. The presence of this symptom, therefore, should affect unfavorably, to a certain extent, the prognosis.

Abdominal tenderness. The histories contain information as to abdominal tenderness in thirty-three cases. Of these cases this symptom was altogether absent, or scarcely appreciable in fourteen, and present, in a greater or less degree, in nineteen.

When present, it was not a prominent symptom except in a few instances. It was slight, or moderate in degree, in ten, and considerable in five cases. In a single case only was the tenderness great.

In nine cases the situation of the tenderness is mentioned. It existed over the entire abdomen in two cases; over the tract of the transverse colon in one case; over the transverse and descending colon in one case; in the left iliac region in two cases; in the right iliac region in one case, and over the tract of the colon in one case, and over the lower part of abdomen in one case.

Of the fatal cases, the presence or absence of tenderness was noted in six; and of these six cases it was present in two, and absent in four. This last

* This fact is directly opposed to the statement by Valleix, viz., that the tenesmus is in proportion to the gravity of the disease.

result is interesting, tending to show that abdominal tenderness is oftener present in cases which recover, than in those ending fatally, a conclusion which probably would not have been anticipated.

These enumerations suffice to prove that abdominal tenderness is not a constant, but only a tolerably frequent event in the natural history of dysentery, being almost invariably slight, or moderate in degree, when present, and that its presence should not affect unfavorably the prognosis.

Abdominal distension. It is noted whether the abdomen was, or was not distended in the histories of twenty-three cases. No distension was observed in nineteen of these twenty-three cases. In the remaining four cases, meteorism, or tympanites existed, but in each case it is noted to have been slight. Of the four cases in which meteorism was present, one only was a fatal case; and of the cases in which this symptom was absent, at least six were among those which proved fatal.

Thus it is evident that absence of abdominal distension is the rule in dysentery, with occasional exceptions in which there exists slight meteoric enlargement; and it is further evident that slight tympanites is no more an unfavorable, than its absence is a favorable indication.

Condition of the tongue. The histories of twenty-three cases contains information respecting the condition of the tongue. In three of these cases, this organ presented no abnormal appearances. In the remaining twenty cases, coating existed in sixteen, and in four cases it was only furred or frosted, i. e. a change in color without an appreciable thickness of deposit on its superior surface. Dryness is noted in two cases, and it is stated that the tongue was moist in ten cases. It is noted in one case that the tongue was reddened, and in one case that the coating had a dark color.

Of the cases, the histories of which contain information respecting the tongue, four were fatal. Two of the three cases in which it is noted that the tongue presented a normal appearance, were among those which proved fatal. Of the remaining two fatal cases in one the tongue was coated, and in the other the coating had a dark color.

It is probable that in a large proportion of cases of dysentery the tongue presents morbid appearances. These appearances, however, have no special significance. They are common to this, and a host of affections. Practitioners who draw pathological inferences therefrom, must do so by a kind of divination, which is entitled to about as much confidence as belonged to the prediction of events, by the ancient augurs, from the flight of birds and an inspection of the entrails of animals. The same remark is applicable to the

observation of the tongue in various, and indeed most other affections. A coating on the tongue is no indication of the severity of the dysenteric affection, since the organ not infrequently preserves a normal appearance, in cases ending fatally, and is observed probably as often, if indeed not oftener, in mild, than in grave cases.

Thirst. In the larger number of histories there is no reference to this symptom. It is noted to have been present in fourteen cases, but it is probable that it existed, to a greater or less extent, in many, if not most of the cases, the histories of which are deficient in information on this point. Of the fourteen cases in which it is noted to have been present, it was quite urgent, or extreme, in five; considerably so in two; moderate or slight in two, and in the five remaining cases, the degree of thirst is not stated. In two of the five cases in which the thirst was quite urgent, and one of the two cases in which it was considerably so, the disease proved fatal. The enumerations, however, are insufficient for any deductions respecting the bearing of this symptom on the prognosis.

Appetite. On this point, also, most of the histories are deficient in information. It is stated that the appetite was, or was not lost, in eleven cases only. Of these cases, in five anorexia existed, the appetite being impaired, but not lost in the remaining six cases. This would seem to show that anorexia existed in the smaller proportion of cases — a conclusion very probably incorrect. It would not be fair to judge the cases, the histories of which are silent on this point, by the results in the few cases in which the presence or absence of this symptom is noted. The presumption is, that the continuance of appetite would be more likely than its absence to arrest the attention, and thus be introduced into the histories; as, with respect to other symptoms which might be mentioned, their absence rather than presence would be deemed remarkable, and consequently be noted. All that is to be said under this head is, that in some cases of dysentery anorexia exists, and, in other cases, the appetite is retained, being more or less diminished. In one of the cases in which the appetite was not lost, the disease proved fatal, and as it happens, none of the five cases in which the appetite is noted as lost ended fatally. These facts suffice to show that anorexia may be present in mild cases, and that it is not uniformly present in those distinguished for gravity.

SECTION FOURTH.

Symptoms referable to the circulation.

Of the phenomena pertaining to the circulation, I have analyzed the cases with reference to the pulse only. In the great majority of the cases the pulse, during the progress of the disease, was increased in frequency. Of forty-two cases, the histories of which contain information on this point, in but four is it noted that there was no acceleration of the pulse. In the amount of acceleration the cases differed considerably. In some the frequency was not much greater than the average in health. In a small number, exclusive of the fatal cases, the increased frequency was great. In the case which presented the maximum of acceleration, (exclusive of the fatal cases,) the pulse was 140 per minute, for four successive days. At noon on the fourth day, it fell from 140 to 120, and during the next twenty-four hours it became reduced to 108. The patient was a female. Instances of even an approximation to so great frequency as this, were very few among the cases ending in recovery. In most of these cases the pulse was slightly, or only moderately accelerated, varying, in adults, from 80 to 100 per minute.

In the fatal cases, increased frequency of the pulse was uniformly noted, and the frequency was notably greater than in the cases ending in recovery. The two groups of cases, (fatal and not fatal,) are in a striking manner distinguished from each other by this circumstance. Selecting five fatal cases in which the enumerations of the pulse are recorded most fully, the mean frequency in the cases severally is as follows: Case No. 1. The enumerations commencing on the third day of the disease, 127. No. 2. Enumerations commencing on the second day, 119. No. 3. Enumerations commencing on the day of the attack, 123. No. 4. Enumerations commencing on the second day, 125. No. 6. Not stated on what day the enumerations were commenced, 112. These averages are considerably higher than in any five cases that might be selected from among those not fatal. Generally in the fatal cases the pulse became more and more frequent as the disease approached its termination, rising to 140, 150, 160, and becoming extinct for a greater or less period before death. One case furnished an exception to this rule. In this case on the day before that on which death took place, the pulse varied from 150 to 160; but on the day of death, and two hours prior to this event, it was appreciable, and had fallen to 132.

Judging from these observations the pulse is a good index of the gravity of this disease. If the pulse become notably accelerated, for example exceeding 120, in the adult, the patient is in considerable danger, and this danger increases, in a geometrical ratio, according as the pulse rises above the point just mentioned. A pulse of 140, unless it be of transient duration, although not absolutely a fatal symptom, points to an unfavorable issue. The probability of recovery, under such circumstances, is small.

The pulse, moreover, in some instances, indicates, by a rapidly increased frequency, an unfavorable change in the course of the disease occurring with equal suddenness. This fact was illustrated in several of the fatal cases in which, within a brief space, a striking difference in the frequency of the pulse was observed; sometimes this marked acceleration of the pulse succeeding another obvious event with which the change in the course of the disease was pathologically associated. As this is a point of practical importance, as well as interest, I will give the details in several of the cases, sufficiently to exemplify the fact just stated:

Case No. 1. In this case, up to the seventh day, the pulse was but slightly accelerated. On the eighth day it rose to 120, becoming, at the same time, small and irregular. Death occurred on the ninth day. The connection of the rapidly induced frequency of the pulse with any other event supposed to be concerned in the unfavorable change, is not noted in the history of this case.

Case No. 2. In the early part of the disease the pulse was but slightly accelerated. On the sixth day it rose to 140. On the seventh it fell to 120, and on the eighth to 116. On the evening it rose again to 140, and afterward to 160. The association of these variations with other pathological events by which they may be accounted for, is not noted.

Case No. 3. In this case, a week after the date of the attack, the pulse was 120. In a few hours, a copious sero-sanguinolent evacuation having in the mean time occurred, it rose to 140. Death on the following day.

Case No. 4. When the patient came under observation, on the second day of the disease, the pulse was 125. It fell, on the following day, to 112. On the next day, copious sanguinolent dejections having in the mean time occurred, it rose to 150, and became nearly extinct on the next day. Death occurred on the day subsequent to the latter.

Case No. 5. On the first and second days after the attack, the pulse was

100. On the third day, 120 at A. M. and 100 at P. M. On the fourth day, at A. M., 116, at evening, 124; later, 140; later still, 150. On the fifth day, 160. On the sixth, day of death, extinct. In this case, sero-sanguinolent dejections occurred more or less frequently from the commencement. The rapid increase in the frequency of the pulse, on the fourth day, however, was not associated with a remarkable increase in the copiousness of this discharge, or any other obvious event accounting for the rapidly developed change for the worse.

Case No. 6. For the first two days the pulse was not accelerated. On the third day, for the first time, the evacuations were sero-sanguinolent. The pulse on that day became 120, and at evening, 125. On the fifth day, at morning, the pulse was 120; at noon, 116; at 9½, P. M., 120; at 11½, P. M., a copious sero-sanguinolent dejection having taken place, 135. Death occurred four days afterward.

A rapidly accelerated pulse occurring in the connection of sequence with abundant sero-sanguinolent discharges, is a fact worthy of notice, but this connection is not in all instances to be observed. A notable frequency of the pulse taking place suddenly, however, should always be regarded as significant of some very unfavorable pathological change, although the character of the change may not be understood. In some cases the pulse is the chief index of such a change. It, therefore, becomes of great importance sometimes in giving the first warning of the existence of danger, and of its extent. No other source of symptoms, perhaps, in this disease, has a more important bearing on prognosis.

It is to be borne in mind that, although a marked acceleration of the pulse attends this disease, probably, in the majority of cases, when it assumes great severity, yet, in some instances in which the disease proceeds to a fatal issue, the increase of the pulse is at no time great. This important fact is illustrated by a few of the fatal cases in this collection.

In the case No. 1, before referred to, the pulse did not rise above 120. In another case the pulse was only moderately accelerated, the enumerations not being given. In another case it did not exceed 112.

Thus, we are by no means warranted in considering a patient free from danger, although the pulse may not be accelerated more than obtains in many cases which end in recovery.

Of the characters pertaining to the pulse, aside from its frequency, it will suffice to speak, in general terms, without giving details. In a small number of cases, in the early part of the disease, the pulse being moderately

accelerated, it had considerable development and force. This kind of pulse was associated with heat of surface; in other words marked febrile reaction, or symptomatic fever was present. Generally, however, when the pulse was accelerated, its quality denoted irritability, rather than increased power. If considerably accelerated, it was either feeble and small, or it was jerking, vibratory, and compressible; and these evidences of diminished power in the forces carrying on the circulation were in proportion to the increase in frequency. In the fatal cases in which there was not great acceleration of the pulse it was small and feeble. As already stated, in most of the fatal cases the pulse became extinct for some time before death. Usually death occurred in a few hours after the pulse became inappreciable, but in one instance life was prolonged over twenty-four hours after the pulse had ceased to be felt at the wrist.

SECTION FIFTH.

Symptoms referable to the nervous system.

The only symptoms referable to the nervous system which enter into the histories, are pain, and aberrations of the mind. As respects the former, the pain was in every instance confined to the abdomen, and the facts concerning this symptom have been sufficiently noticed already, under the head of tormina, in section third. It remains only, therefore, in the present section, to present the facts which pertain to the mental condition.

In not one of the cases ending in recovery is the presence of delirium noted. Among the cases proving fatal, a striking contrast was exhibited as regards this symptom. In some the intellect was retained with remarkable clearness to the close of life; in other cases delirium existed in a marked degree. Of nine cases, the histories of which are complete in this particular, in four the patients preserved clearness of mind up to the last moments. In the remaining five cases more or less delirium existed. In two of these five cases the mental aberration consisted only in slight wandering, indicated by incoherency, coming on toward the close of life. In the other three cases the delirium was active and constituted a prominent symptom. The patients in these cases were boisterous, attempted to get out of bed, and required restraint. In one of the cases so violent were the efforts, at a time when the other symptoms denoted impending dissolution, accompanied by loud talking and singing in a manner painfully incongruous, that it was deemed advisable to resort to chloroform, and the patient was kept under its influence in a degree

sufficient to enforce quietude for eight or nine hours preceding the fatal termination.

The striking contrast thus exhibited among the fatal cases is an interesting pathological fact. It would appear that sometimes the dysenteric affection is directed toward the cerebral organs, while at other times, this portion of the organism is singularly exempt from any participation in the morbid processes involved in the disease. We cannot offer any explanation of this discordancy without the aid of speculative reasoning, and this would be out of place in this report in which the writer aims to keep strictly within the limits of historical facts, and the pathological conclusions to be legitimately deduced therefrom.

So far as the present collection of cases furnishes data on this point, it would follow that delirium is, to say the least, an event extremely unfavorable as respects prognosis, in dysentery, since it was alone observed among the cases which proved fatal. It may be, however, that were the number of cases considerably larger, a different conclusion might be deducible. Past observations by different persons, lead to the supposition that the occurrence of delirium, as a prominent feature of this disease, characterizes its prevalence, as an epidemic, at certain times and places. Systematic writers have instituted a variety of the affection denominated typhous dysentery, of which a point of delirium analogous to that of the typhus and typhoid fevers is a distinctive trait. This title implies an hypothesis which it would not be appropriate to discuss in this connection. The relations which the symptom under consideration, (delirium,) bears, not alone to the prognosis, but to the pathological character of the disease, is one of the subjects, with reference to which more extended analytical investigations are desirable. Although active delirium was not present in any of the cases ending in recovery, among those now analyzed, it has fallen under my observation when the issue was favorable. In a case, of which no notes were made, this symptom was developed early, and continued, in a notable degree, during the whole career of the disease. The dysenteric discharges were severe, copious sero-sanguinolent and mucous evacuations taking place. The gravity of the disease was greater than in any other case, ending in recovery, that has ever fallen under my observation.

In conclusion, we are, perhaps, justified in saying that the occurrence of delirium as a prominent symptom in dysentery, exclusive of epidemics in which it is present as a characteristic, must be regarded as an extremely unfavorable event, and should lead us to anticipate a fatal result.

SECTION SIXTH.

Symptoms referable to the skin.

Skin. In a portion only of the histories (20) is the condition of the skin noted. An examination of the facts observed in these cases, shows sweating to be an event occasionally occurring in the course of this disease. It occurred in several of the fatal cases toward the close of life; in other instances the skin remaining dry. Aside from its occurrence under these circumstances, it was noticed in but a small proportion of cases. It is not specially significant of danger, unless, at the same time, other symptoms denote a change for the worse, since the not fatal cases in which it was observed were not particularly severe, and some were mild. Moisture of the surface, that is, a degree of perspiration falling short of sweating, is noted in a few cases. It is very probable that this occurred in more or less of the cases in the histories of which no reference is made to it. It would be more likely to happen that moisture would not be noted, than that sweating would escape attention in recording the histories. In a certain proportion, however, of cases of dysentery, perhaps in the larger number of those ending in recovery, the surface remains free from sweating or moisture.

As regards temperature, in most of the cases the skin was cool, or retained the normal degree of heat. In a few instances an increase of temperature was observed. This was in the early part of the disease forming an element of the febrile reaction which, as already stated, was observed in a small number of cases. In the fatal cases, coldness of the surface uniformly preceded, for a greater or less period, the termination of the disease; the coldness sometimes accompanied by clammy moisture or sweating, and in other instances the skin remaining dry, the body, for some time prior to death, feeling like a cadaver.

None of the eruptions described by authors as incident to dysentery, were observed in the cases under analysis.

SECTION SEVENTH.

Symptoms referable to the respiratory system.

I have analyzed the histories with reference to morbid phenomena pertaining to the respiratory system, but, with a very few exceptions, they contain nothing of importance falling under this head. It is noted in the histor

of one of the fatal cases, that the respirations were abnormally infrequent, becoming more and more slow as death approached. In but one instance, only, is it recorded that cough and expectoration were present. In this case the patient stated that she had taken cold just before the dysenteric attack. The symptoms just mentioned were, in this instance, slight. One patient complained of a painful sense of the want of breath for several hours before death. These are all the facts contained in the histories belonging to this division of the analytical investigation.

It is evident that the pulmonary apparatus does not furnish morbid elements entering into the natural history of dysentery. Or, to vary the language, the intimate pathological condition which constitutes this disease, so far as a judgment may be based on its symptomatology, has no special manifestations in that portion of the organism.

SECTION EIGHTH.

Duration of disease to death or convalescence. Mode of dying. Relapses. Fatality.

I will examine the facts with respect to the duration of the disease, etc., *first*, in the cases which ended in recovery; and, *second*, in those terminating fatally.

Duration, etc., in the not fatal cases. The duration is dated from the commencement of the illness, not from the time when the dysenteric discharges were first observed. It has been seen, (section second,) that the characteristic evacuations were usually preceded for one, two, three days, or more, by ordinary diarrhœa. It is, perhaps, proper to consider the disease as having commenced when the latter was present, and the duration is determinable in a larger number of cases, by pursuing this course. The ending of this disease is fixed at the time when the dysenteric discharges ceased entirely, or there was such a marked improvement in all the symptoms that the patient could be pronounced convalescent. In determining the latter boundary, some latitude of judgment is of course allowable. The duration cannot be ascertained with rigorous exactitude, but sufficiently so for all practical purposes. The data for determining the precise duration, or a close approximation thereto, are contained in thirty of the thirty-eight cases that ended in recovery. The periods varied considerably in the different cases. The shortest duration was a single day, but this was true of but one case only. The next shortest period is four days. In one instance only was the

career of the disease so short as this. In four cases the disease lasted but five days. In two cases it lasted six days; in three cases seven days; in four cases eight days; in one case nine days; in four cases ten days; in one ease eleven days; in two cases, twelve days; in two cases, thirteen days; in two cases, fourteen days; in no instance fifteen days; in two cases, sixteen days; in one case twenty-one days, and in no instanee for a longer period.

The mean duration in this group of cases, is nine 5-6 days.

A striking disparity is developed by a comparison of the duration in the cases occurring in private praetiee, with those treated in hospital. Of the thirty cases, thirteen were in hospital, and seventeen in private practice. The mean duration in the thirteen hospital eases, is just thirteen days. Of the seventeen eases in private practice, the mean duration is only a fraction over seven days! The explanation of this difference which suggests itself is, that the hospital patients were generally admitted after the disease had existed for some time, frequently without having received any treatment, and sometimes, perhaps, having been injudiciously treated. That the condition of the hospital patients after admission was even better than that of the patients in private praetiee, is rendered probable by the fact that the ratio of fatality among the latter was considerably greater. Of twenty-seven patients in private practiee, eight died; while of twenty-two hospital cases, in only three was the disease fatal. It is a curious fact that the duration of the disease should be nearly twice as great in the hospital cases, and at the same time the mortality less than one-half in these eases, contrasted with those occurring in private practice! The fact proves that, whatever were the causes which occasioned the longer duration in the patients treated in hospital, they were not of a eharaeter to increase the danger of a fatal result; and it is a singular conclusion, which at first view appears paradoxical, that there may exist causes tending to prolong this disease, while, if the tendeney to a fatal result be at all influenced thereby, it is lessened rather than increased by them! It serves to reconcile this apparent incongruity of the duration and fatality, to suppose that the situation of the patients in hospital was more favorable for the successful treatment of the disease than that of the patients in private practiee.

The advent of convalescence was denoted by cessation, or marked diminution of the dysenteric evaeuations, and a return of their normal appearanee, an amelioration of the symptoms generally taking place at the same time. The rapidity with which the natural feces reappeared, varied considerably in different cases. In some the mucus and bloody dejections ceased almost at once, but in other instances they disappeared more gradually, and in a few

cases these morbid appearances were occasionally observed, for several days after the patients were decidedly convalescent. In a very small number of cases only did the affection continue and assume a chronic character. This was true only of two of the cases analyzed, and in these cases recovery took place after a few weeks. Thus, in not a single instance among the cases in this collection, was that obstinate form of chronic dysentery now and then met with in medical practice, produced as a sequel of the acute disease. This fact, coupled with the infrequency of cases of chronic dysentery, so far as my experience goes, leads me to infer that the intestinal affection, except in the instances in which the severity of the disease leads to a fatal result within a short period, tends to complete recovery in the great majority of cases.

Nor were relapses observed. In not a single instance did a repetition of the dysenteric affection occur after convalescence was pronounced. This is an interesting fact, taken in connection with some other facts, in its pathological bearing; going to show that the disease belongs in the category with those which involve certain processes (zymotic) within the organism, reproduced with difficulty after they are completed.

Finally, the recovery from the disease, in the great majority of cases, was rapid, as well as complete.

Duration, etc., in the fatal cases. The duration is determinable in ten of the eleven cases forming this group. The number of days from the date of the attack to the time of death, in the cases respectively, are as follows: six days, two cases; seven days, two cases; nine days, two cases; ten days, two cases; eleven days, one case, and nineteen days one case.

The mean period is a fraction over nine days.

The brief duration accords with what was stated with respect to the tendency of the disease to become chronic. So far as a judgment may be based on the data contained in this collection of cases, the affection is one which usually runs on, rather rapidly, either to a fatal termination, or to recovery. In this respect it resembles the essential fevers. The pathological significance of this fact is obvious.

The mode of dying was in every instance by asthenia. The progress toward a fatal termination was marked by progressive diminution of the forces carrying on the circulation, shown by the pulse becoming more and more feeble, generally proportionably frequent, and finally becoming extinct, the patient falling into a state of collapse. The rapidity with which the state of collapse was induced, and the period which afterward elapsed before death, varied considerably. The connection which was observed between the

induction of this state, or of a notable change in the circulation eventuating therein, and the occurrence of copious sero-sanguinolent discharges has been already referred to in section third. Also the striking difference as regards the condition of the intellect in the latter part of the disease in the fatal cases has been noticed in section fifth.

Fatality. Of the forty-nine cases analyzed, eleven proved fatal. Adding to the forty-nine cases the eleven which were rejected in consequence of too great deficiencies in the histories, of the whole sixty cases, thirteen proved fatal. This does not show the ratio of fatality to the whole number of cases treated by me during the period that these histories were collected, for, during this period quite a number of cases were observed of which no notes were taken, while, my belief is that the thirteen fatal cases just mentioned, include all that have fallen under my observation in which recovery did not take place. But it would be of little use to determine with exactness the total number of deaths to the whole number of cases, for an examination of the relative number of deaths in different periods of the whole time over which the dates of the cases in this collection extend, will show that the tendency of this disease to a fatal issue is by no means uniform. It is with reference to the latter point, chiefly, that the facts contained in the present collection of cases possess any interest. To this point, therefore, the interrogation of the histories will be restricted.

The first of the fatal cases among those analyzed, occurred in July, 1848. In this case I was not the attending physician, but visited in consultation. The first fatal case which ever came under my observation, in which the responsibility of the management devolved solely upon me, was in July, 1849. This is the fifteenth case in the present collection, numbered in chronological order. In the year 1849, dysentery prevailed in this city, as an epidemic, in connection with epidemic cholera. All the cases that I had observed prior to this time, were sporadic cases, and all recovered. I had never witnessed a fatal issue of the disease. During the summer and autumn of 1849, I recorded the histories of twenty-six cases. Of these twenty-six cases four were fatal. The eleven remaining cases occurred during the years 1850, 1851, and 1852. Of these eleven cases six were fatal. Dividing the whole time during which the histories were collected, into the three periods just referred to, we have 1st. The period of eight years when dysentery occurred only as a sporadic disease, and cases were very infrequent; 2d. The year of 1849, in which it prevailed considerably as an epidemic following cholera; and 3d. The three subsequent years, when it prevailed as an epidemic, but

to a much less extent than in 1849. Now I cannot present the exact ratio of fatal cases to the whole number observed during these periods respectively, because in each period a number of cases ending in recovery fell under observation which were not recorded. But, assuming that the number of recorded cases in the three periods, represents the relative prevalence of the disease in the periods respectively, an assumption which I am satisfied is not far from the truth, and the facts pertaining to the fatality show, *first*, the absence of a tendency in the disease in this situation to a fatal issue when it occurs as a sporadic affection; and, *second*, that as an epidemic, the inherent tendency, in the same situation, is greater at some seasons than at others. These conclusions are by no means novel. Moreover, I am free to admit that they are not rigorously proved. An important postulate in the argument rests only on opinion. It is necessary to assume, also, that the management, in the three periods, was the same, or equally judicious; and the number of fatal cases is too small to be independent of coincidences. With these qualifications the deductions would not be entitled to much consideration were they opposed to views generally entertained; but the fact that they go to sustain these views is presumptive evidence of their correctness.

SECTION NINTH.

Supposed causative agencies.

By the above caption I do not mean to refer to the occult, special cause, or causes which it is probable are necessarily involved in the production of dysentery, but to any obvious circumstances, which, occurring at, or near the time of the attack, might be suspected to have exerted some agency in the development of the disease. In other words, it is chiefly with reference to exciting, not essential causes, that the histories may be expected to contain historical information. The analysis reveals scarcely any thing of importance falling under this head. Among the whole forty-nine cases, in but two instances are any circumstances stated to which the disease appeared, in any measure, to be attributable. In one of these cases the patient had eaten freely of green fruit the day before the attack, and it is noted, also, that at the time of the attack, a considerable change in the weather had taken place, from hot to cold. In the other case, the patient had eaten freely of ice cream, and drank champagne wine the evening prior to the day of the attack.

In a few of the histories it is noted that there were no circumstances which might be suspected to stand to the disease in the relation of exciting

causes, but generally nothing is recorded on the subject. It may be thought that, in the cases in which the records are silent, attention was not directed to this point, and that perhaps particular inquiries would frequently have elicited information bearing on the causation. I admit it would have been more satisfactory had the histories declared that such inquiries had been instituted with negative results; but it may be remarked that patients are usually very ready to assign some circumstance, or circumstances as the causes of their illness, and that circumstances are more apt to be voluntarily communicated, (with certain obvious exceptions,) relating to this, than to any other point. It is, therefore, probable, that in most, if not all the cases in which nothing is noted concerning the causation, nothing had occurred which, in the patients' estimation, occasioned the disease. Reasoning in this way, the inference to be drawn from the negative facts in this collection of cases is, that dysentery, in the great majority of cases, does not involve any obvious exciting causes. This conclusion has more significance than, on a superficial view, may appear. In proportion as any affection is shown to be independent of apparent external circumstances is it evident that its causation involves inappreciable and special morbid agencies. This may be stated as a law of etiological investigation. And, in accordance with this law, the absence of exciting causes, as the rule, is evidence that dysentery proceeds from the operation of influences to be included in the class of those which have, as yet, eluded scientific research.

In one of the cases the disease occurred shortly after recovery from epidemic cholera. The latter affection may have predisposed to the former.

In another case the patient was attacked with a mild form of the disease, which, on the third day, was so far relieved that it was anticipated he would be able to go out on the following day, when an officious neighbor persuaded him to be stripped and undergo a process of ablution in a tub of hot water containing mustard. The next morning the attack was renewed with great severity, and the disease proved fatal.

As already stated, our present range of inquiry does not embrace the subject of the special or essential agencies involved in the causation of dysentery. Some facts, however, have already been submitted, (section first,) which have an important bearing on the question whether the disease does involve such agencies, or not. Reference is had to the influences incident to season and to different years. The consideration of these, and other circumstances bearing on this subject, will come up in a more appropriate connection after the completion of the clinical report.

In conclusion, my observations fail in supplying any facts going to show

the contagiousness of dysentery, a doctrine which, as is well known, has heretofore had its supporters, and which circumstances have sometimes seemed to sustain. Whether the disease in any of its forms or associations may not be communicable, cannot, of course, be settled by the data which I have collected; but, if ever contagious, it has certainly not given any evidence of this property in the cases, sporadic or epidemic, that have fallen under my observation.

SECTION TENTH.

State of health subsequent to recovery. Recurrence of the disease.

The subjects of this section are interesting, and so far as I know, have not been investigated by means of recorded facts. What remote effects, if any, in the organism, follow an attack of dysentery? Does it beget a predisposition to any other disease? Does it impair the constitutional vigor? Is the patient afterward liable to renewed attacks of the disease, or is the susceptibility to the action of the cause, or causes, lessened, or destroyed, so that the morbid processes having once taken place, there is greater security, if not entire exemption thereafter? These are questions interesting in themselves, and important in their pathological bearings. The facts in this collection of cases pertaining to these subjects are not numerous, but few as they are, they lead to the belief that they involve something more than coincidences: that they point to laws of the disease which do not appear, as yet, to have received attention. I will proceed to present the results developed by the analysis.

Of the thirty-eight cases ending in recovery, in sixteen the patients either continued under observation, or definite information was obtained respecting their subsequent health for periods varying from one year to thirteen years. To be more precise, with regard to these periods, the duration of the subsequent history in the cases respectively are as follows: thirteen years, one case; seven years, two cases; five years, two cases; four years, nine cases; two years, one case, and one year, one case.* In all, sixteen cases. Of these sixteen patients one only has died. This patient died with tuberculosis of the lungs, four years after recovering from dysentery. Of the remaining fifteen cases, in all the health has been good during the periods, respectively, during which the patients remained under observation, or within knowledge.

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* I do not give the periods with more exactness than the number of years. In no case does the period fall short of the year specified; in several cases it extends some months longer.

I mean by this, that not one has suffered from any other important disease, and in nearly every instance there has been excellent health.

Not one of these fifteen patients has experienced a second attack of dysentery. This result is rendered somewhat more striking by the fact that, exclusive of the ease in which the date of the disease was but a year since, all the patients have been for several years past within the sphere of an epidemic influence, the disease, as already stated, having prevailed more or less, as an epidemic, in this city, in the autumnal months for the last four years. I can also call to mind several cases of dysentery occurring at least four years since, the histories of which were not taken, the patients, in the mean time, being under observation. In none of these instances has the disease been twice experienced. *I have not yet met with a second attack of dysentery.* It is worthy of notice that three of the cases in this collection occurred in one family at different dates, viz., one case, thirteen years ago; one four years, and one two years. In these instances new subjects were attacked, they escaping who had previously had the disease.

It would seem, from these facts, that an attack of dysentery does not exert an unfavorable influence on the organism; that patients are not rendered thereby prone to any particular disease, but, on the other hand, enjoy good health. It would also seem that patients are not liable to a repetition of the disease.

I would not be understood as presenting these inferences in the light of established truths. The number of observations is too small to warrant deductions which shall represent fixed laws of the disease. But, as already remarked, it is difficult to account for the facts on the hypothesis of their being due to mere coincidence; and I repeat that the facts point to the existence of laws which remain to be settled by farther investigation. We are at least justified in concluding, from the data before us, that deterioration of the health subsequent to dysentery is not the general rule, and that an attack does not lead to any increased susceptibility to the cause, or causes of the disease.

Note. — The conclusion drawn from the facts developed by this analysis with respect to the recurrence of the disease, I am aware is at variance with authority on this point. Valleix, for example, says, "On a également noté assez fréquemment de véritables *récidives;* car la dyssenterie n'est pas une de ces affections qu'on n' éprouve qu' une seule fois dans la vie. Certains sujets y sont particulièrement exposés, et en sont fréquemment atteints." * He does not, however, adduce facts in proof of this statement: but I am not prepared to declare that the statement has not been proved by reported facts.

* Guide du Médicin Praticien. Tom. Troisième.

SECTION ELEVENTH.

Description. Species. Definition. Name. Diagnosis.

Description. Limited to the distinctive traits developed by the foregoing analysis, the following description will, in other words, be a synopsis of the more important of the facts which have been already seen to enter into the natural history of the disease.

Dysentery is not peculiar to any period of life, but attacks, by preference, the young and middle aged; it is not restricted to either sex, but it attacks a larger number of males than females.

It occurs both as a sporadic and epidemic disease; as a sporadic disease, it is generally mild, and very seldom fatal; as an epidemic, it is often a severe and fatal disease, presenting also certain semeiological and pathological characters not belonging to the sporadic form.

It occurs, in either form, during the months of July, August, September, and October, being very rarely observed in the remaining months of the year.

Persons apparently in good health, are as liable to be attacked by it as those who are feeble, or already suffering from different kinds of maladies.

In the great majority of cases the disease commences with simple diarrhœa, which continues one, two, three, or four days, and occasionally even longer, before the dysenteric characters make their appearance.

The distinctive symptoms pertain to the intestinal canal. The discharges contain mucus and blood in more or less abundance; the mucus sometimes in jelly-like masses, and sometimes in opaque flakes or laminæ. In severe cases a sero-sanguinolent fluid, more or less abundant, frequently accompanies the mucous discharges. Occasionally the dejections are observed to contain puruloid matter. The discharges generally are frequent, sometimes recurring after very short intervals; and usually, under these circumstances, they are quite small. They may contain, from time to time, fecal matter in greater or less quantity, except in very severe cases; and, in some instances, the fecal matter is in small, hard lumps, called scybala.

Associated with the dejections are tormina and tenesmus in most cases; but cases differ considerably as to the prominence of these symptoms, and in the cases attended with most danger, they are frequently the least prominent.

Abdominal tenderness is sometimes present, but rarely in a marked degree,

and often absent. When present it may be found to be situated especially in some part of the tract of the large intestine.

Abdominal distension from meteorism is very rarely present, and, when present, slight.

Vomiting is an occasional symptom, and when present is an unfavorable event.

The tongue presents various appearances, but nothing distinctive of this disease.

Thirst is often present, and sometimes absent. The appetite is frequently lost, and in most cases more or less impaired.

The pulse, in mild cases, is but little accelerated. In severe cases, however, it becomes more or less frequent. The frequency being, ordinarily, in proportion to the danger of a fatal issue. Active symptomatic fever, in a small proportion of cases, accompanies the development of the disease; but after the early stage, the pulse is generally either feeble, or vibratory, in proportion to the increased frequency. The increase in frequency and diminution in power, of the circulation, become more and more marked as the disease approaches a fatal termination. A sudden increase in the frequency of the pulse denotes an unfavorable change in the progress of the disease.

The mind, in mild cases, remains unaffected, and in the majority of fatal cases the intellect is preserved until death, or a short time previous; but some cases are characterized by delirium, which may be active, the patient even requiring restraint.

Sweating, and moisture of the surface, are events occasionally occurring both in fatal, and not fatal cases. They are not common. The skin, excepting the few instances in which symptomatic fever occurs, is cool, and in fatal cases usually the temperature is reduced in a notable degree, the reduction progressively increasing until the coldness becomes cadaveric.

No pulmonary symptoms are observable, or worthy of note, in the great majority of cases.

The duration of the disease varies from one day to twenty-one days, in the cases which recover, the average duration being about nine days; and in fatal cases, death occurs in from six to nineteen days, the average duration being also not far from nine days.

Relapses are not apt to occur, and convalescence is usually rapid.

The disease very seldom eventuates in chronic dysentery.

The mode of dying is by asthenia.

The fatality is limited to the epidemic form of the disease, and in this form varies considerably in different seasons.

In the great majority of cases, the disease cannot be traced to any obvious exciting causes.

When recovery takes place, the health is usually regained fully. The powers of the constitution are not permanently impaired, nor is there left a predisposition to any particular forms of disease. There are grounds for the opinion that persons who have once experienced the disease, are rendered less liable to be afterward attacked by it.

Species. The diversities under which dysentery is presented at different epochs, and, also, in different cases occurring at the same time and place, have led writers to institute several species of the disease. Thus, in some systematic works we find described species distinguished as typhous, bilious, intermittent and remittent, rheumatic, febrile and non-febrile, etc. Such subdivisions are of doubtful propriety, but it cannot be doubted that some of them are based on peculiarities which are interesting and important. The foregoing analysis of a limited number of cases, developed striking points of dissimilarity, viz., the sero-sanguinolent dejections in a certain proportion of cases; delirium in a small proportion, the mind maintaining its clearness in the remainder, and the presence or absence of well-marked symptomatic fever. These, and other variations, belong to the natural history of the disease, and, as such, claim the attention of the medical inquirer. But to consider them as giving rise to distinct species of the disease is, to say the least, an over-refinement of nosology, which complicates the subject without any corresponding advantages.

Some of the subdivisions of writers are based, not on variations in the phenomena of the disease, but on the coexistence of other diseases. Thus, dysentery may occur as a complication of the continued and the periodical fevers. Such are the cases, probably, that have been called cases of typhous, and remitting or intermitting dysentery. So rheumatism and dysentery are occasionally associated. These combinations are important in their practical relations, but it does not follow that the dysentery, under such circumstances, is specifically different.

The division into sporadic and epidemic dysentery is certainly appropriate. In its epidemic form, the disease may present symptoms and pathological characters rarely, if ever, observed in sporadic cases. Copious sero-sanguinolent discharges, for example, probably are peculiar to epidemic dysentery. Sporadic dysentery, as has been seen, is generally mild, and almost never fatal. The local affection, *i. e.*, the morbid changes within the intestine, have not the same extent, severity, and perhaps not the same character as those

which are found, on dissection, in fatal cases of the epidemic form. Nevertheless, when the disease prevails as an epidemic, a certain proportion of cases are mild, and resemble, apparently, in all respects, those which occur sporadically, so that we might not be able, in individual instances, to declare that the disease belonged to the epidemic form. This fact renders it proper to distinguish between mild and severe cases of epidemic dysentery.

It is unnecessary to add, that the division into acute and chronic dysentery, is a valid one. The foregoing analysis, and the remarks appended thereto, have reference, as already stated, solely to acute dysentery.

Definition. Diseases are defined by selecting the most distinguishing traits from the symptoms exclusively, or by combining therewith facts derived from the morbid anatomy, together with, sometimes, an expression of the pathological character of the affection. In this instance, the symptoms pertaining to the intestinal discharges, furnish characters sufficiently precise and comprehensive for a definition which shall be free from hypothetical assumptions.

Dysentery is a disease, characterized by an abnormal frequency of evacuations from the bowels, containing mucus, with or without fibrinous flakes, usually mixed with blood, in some severe cases a discharge of thin sanguinolent fluid, puruloid matter occasionally being observed in the course of the disease, the evacuations accompanied by more or less tormina and tenesmus; occurring sporadically, and as an epidemic; cases of the former generally mild and almost uniformly ending favorably after a short career, but in the latter form frequently a grave disease, running a rapid course, ending fatally, by asthenia, in a ratio of cases varying at different epochs.

This comprises circumstances belonging to the natural history of the disease sufficient in number and character to distinguish it from other affections, and, if so, it secures all that is practically desirable in a definition.

Name. The disease is almost uniformly denominated by medical writers, as well as in common parlance, dysentery. The term does not derive any special significance from its etymology, but it has the negative merit of being free from error and hypothesis. Colonitis, or colitis, denote, what is true undoubtedly of a large proportion of cases, viz: the existence of inflammation in the colon; but it is not certain that in very mild cases the inflammation extends above the rectum. It is highly probable, indeed, that in some instances the local affection is confined to this part. Moreover, the disease in its epidemic, if not in its sporadic form, involves a morbid condition ulterior

to the intestinal affection, so that a term limited in its signification to the latter does not comprehend all the disease. This criticism, however, might be applied to the names given to a large proportion of inflammatory affections; and the term dysentery is equally obnoxious to it.

Cases of the disease in which copious sanguinolent dejections take place have been called, popularly, and also by medical writers, *bloody flux*.

On the whole, with our present knowledge of the disease, it would be difficult to devise a title to be preferred to that which custom and long usage have assigned to it.

Diagnosis. The diagnosis of dysentery is not attended by any difficulties. The characters pertaining to the intestinal evacuations are so obvious and well-marked, that it would be difficult to confound it with any other affection. Cases of hemorrhage from the bowels are readily discriminated by the absence of mucus; and the discharge of pus from hepatic, or other abscesses opening into the alimentary canal, is neither preceded, nor accompanied by the symptoms invariably associated therewith in cases of dysentery.

SECTION TWELFTH.

Treatment, and immediate (apparent) effects of remedies.

In this section I shall complete the historical account of the cases analyzed, by giving the facts with respect to the treatment. I shall also offer any considerations respecting the effects of the remedies used, which an examination of these facts may suggest. It is obvious that in so small a number of observations the objects of study must be limited mainly to the immediate effects of remedies. A larger number of fatal and non-fatal cases is necessary for statistical data, by means of which the remote effects, *i. e.* the agency in producing death or recovery, of different measures of management, may be to some extent determined. I am careful to qualify the word effects in the caption of this section, by the term apparent. In estimating the immediate effects of remedies, a certain allowance is to be made for changes incident to the tendency of disease either toward recovery or death — changes due to the operations going on within the organism irrespective of medicinal influences. It is frequently very difficult to say how far an improvement in the symptoms, or the reverse, may be explicable in that way, and, hence, is a liability to err in judging of the immediate effects of remedies. This

difficulty will diminish in proportion as the natural history and laws of disease are better established.

The remedies used in the treatment of the cases in this collection for the most part are divisible into the following classes: 1. Laxatives. 2. Mercury. 3. Opium. 4. Astringents, and topical applications by means of enemas. I will consider the facts pertaining to the use and immediate effects of these classes of remedies under distinct heads. I would remark here, that I do not propose in this section to discuss the subject of the management of dysentery. This I reserve for another place.

1. *Laxatives.* Laxatives were prescribed in only a small number of cases. The only laxative remedy used was castor-oil, exclusive of calomel, which, in a very few instances, was given in laxative, or cathartic doses; but these instances will be noticed under another head. In all the instances in which castor-oil was given, its operation was followed by the use of anodyne remedies administered by the mouth, or rectum. In no case did it constitute the chief measure of treatment, other remedies preceding, and as well as following it. In no instance does it appear to have been given more than once in the course of the disease. Judged by a comparison of the symptoms before its administration, and after its operation, the immediate apparent effects of the remedy, in eight cases, in which it entered into the treatment, were as follows: In two instances the affection appeared to be aggravated: that is, the dysenteric discharges denoted greater severity of disease after, than before the operation. In three instances the apparent effect was good, as shown by improvement in the dysenteric characters of the discharges. In the remaining three cases, no obvious change for the better, or worse, was observed.

In all the cases in which castor-oil was given, the disease ended in recovery.

I may remark that laxative remedies would probably have been used in a larger number of instances, and I should have tried those of the saline class, (which have been strongly recommended in this disease, of late years, by several writers,) had not most of the cases in this collection occurred in seasons when epidemic cholera prevailed to a greater or less extent. Under these circumstances, it was feared that the use of remedies of this class might be attended with a risk of inducing choleraic evacuations.

Mercury. Calomel was the only mercurial preparation given. This remedy was prescribed, more or less, in twenty-three cases. It was given, in some cases, in doses of one or two grains, repeated, usually, every four or six hours, but sometimes more frequently; in some cases in doses of five grains;

and in other cases in doses still larger, viz: ten or fifteen grains. In almost every instance it was given in combination with some form of opium. In most of the cases, into the treatment of which calomel entered, other measures either preceded, or followed its use, or were pursued simultaneously. It is difficult, therefore, and indeed impossible, to isolate the operation of this, or any of the remedies sufficiently to determine with exact precision the effect, immediate or remote, which properly belonged to it in the cases severally. Some practical conclusions, however, may perhaps be reached, by comparing the apparent effect in different cases, and subsequently instituting comparisons between the present group of cases and those which were treated without mercury.

As the importance, or propriety of using mercury in dysentery is a subject which has occasioned considerable discussion of late, and respecting which there exists difference of opinion among practitioners, it may be more satisfactory to present a brief statement of the facts pertaining to this remedy contained in each of the histories distinctly. In doing this, as much conciseness as is practicable will be observed, in order not to weary the reader too much with tedious details. The duration of the disease, and the result, will be given in connection with each case.

No. 1. Calomel, gr. i, with Dover's powder, gr. ii, every four hours, and, at the same time, chalk mixture and paregoric, were prescribed on the fourth day. This was preceded by a dose of castor-oil. Patient was a child. Recovered. Duration of disease six or seven days.

No. 2. On the fourth day, calomel, gr. i, hourly, for six hours; then gr. $\frac{1}{2}$, every two hours, for two days, and an ounce of ung. hydrarg., in the mean time, applied endermically with friction. The patient was four years of age. No improvement of symptoms. Subsequently, calomel, grs. iii, every four hours, till free cathartic effect was produced, with bilious stools so called. No improvement. The remedy was then suspended, and the case treated with opium by the mouth and rectum, etc. Recovered. Duration not noted. This is one of the cases which persisted for some time in a chronic form.

No. 3. On the evening of the day on which dysenteric discharges appeared, 4 grs. of calomel were prescribed, and the remedy continued, in doses of grs. ii, every two hours, until 12 grains had been taken. The so-called bilious stools not being produced, another dose of grs. iv, was given. Copious green evacuations followed. To these succeeded profuse sero-sanguinolent

discharges, and great prostration. The disease ended fatally on the third day after this treatment was pursued.

No. 4. At the commencement of the disease, calomel was given in doses of grs. ii, every four hours, with enemas of a solution of the sulphate of morphia and kreosote. Continued only for one day, and the sulphate of morphia substituted. On the seventh day, (symptoms becoming worse,) calomel again prescribed in doses of grs. iii, with opium grs. iss., every four hours. On the eighth and ninth days, improvement. On the tenth day (calomel continued) the discharges became sero-sanguinolent, the pulse rose rapidly in frequency, and the case ended fatally on the eleventh day.

No. 5. Calomel, grs. v, with opium, gr. ss., repeated twice, with four hours interval. Patient 8 years of age. Discharges diminished in frequency, and became more abundant, with but little blood and mucus, during following day and night. Calomel, grs. ii, with opium, gr. ss., every four hours, with enemas of laudanum, and semicupia, constituted the subsequent treatment. Recovered. Duration eight days.

No. 6. Calomel, grs. ii, with opium, gr. i, every four or six hours, was continued for three or four days. This treatment was commenced when ordinary diarrhœa only existed. The dysenteric discharges occurred under the treatment. The calomel was then suspended, and the case treated with acetate of lead and opium, tannin, morphia and quinia, with enemas of laudanum. Recovered. Duration five days.

No. 7. When dysenteric discharges appeared, calomel, in dose of about 10 grs., was given, and the remedy continued in doses of grs. ii, to grs. iii, combined with Dover's powder and opium, and laudanum enemas administered. The day but one after dysenteric discharges appeared, after an enema of a solution of morphia, gr. i, and of acetate of lead, gr. x, no dejection occurred for three days, and then a movement was obtained by an emollient enema. No looseness followed. Recovered. Duration, four or five days.

No. 8. Calomel, grs. xv, with opium, grs. ii, given shortly after the commencement of dysenteric discharges. No dejection till the following day, and then no mucus nor blood. The latter dejection followed by an enema of a decoction of oak bark, and no movement afterward for two days. Recovered. Duration, three or four days.

No. 9. Calomel, grs. x, to grs. xv, with opium, grs. ii. No dejection for

twenty-four hours. On the following day, two or three evacuations occurred without dysenteric characters. Calomel, grs. v, and S. morphiæ, gr. ¼, with enema of laudanum. No dejection till the next day, when the bowels were moved by an enema. No recurrence of diarrhœa. Moderate ptyalism. Recovered. Duration, five or six days.

No. 10. Calomel in doses of grs. ii, every four or six hours, with opium, Dover's powder, or the sulphate of morphia, was continued for several days. Afterward, anodynes by mouth and rectum, acetate of lead, and tannic acid. Fatal on the tenth day.

No. 11. The dysenteric discharges appeared, in this case, while the patient was taking calomel in small doses. When the dysenteric discharges appeared, calomel, grs. v, with opium, grs. ii, was given. In a short time it was repeated, with T. opii, gtt. 100, pain being severe. On the following day, ptyalism was observed, and became severe. Subsequent treatment consisted of morphia, acetate of lead, tannic acid, diffusible stimulus. As respects the several symptoms, this was, perhaps, the gravest of the cases ending in recovery. Duration, eight days.

No. 12. Treated with opium till the third day, when there was an increased severity of the symptoms. Then calomel prescribed in doses of grs. v, with opium, grs. ii, every four or six hours. Afterward had but two dejections in twenty-four hours, and speedily convalesced. Duration, five days.

No. 13. On the second day, calomel, grs. iii, with opium, grs. ii, every four or six hours. No improvement on the third day, when the calomel was suspended, and the opium continued. On the fourth day, symptoms improved. On the fifth, dejections became more frequent, with more blood and mucus, and the calomel was resumed in doses of grs. iii, with opium, grs. ii, every four or six hours. On the sixth day, no improvement, and castor-oil was given, followed by opium and astringents. Under this treatment recovery took place. Duration, eight days.

No. 14. First day after admission into hospital, the treatment consisted of T. opii, gtt. xxx, every six hours, and enemas of laudanum. Second day, symptoms improved. Calomel, grs. x, with opium, gr. i, prescribed on this day. Third day marked improvement. Opium continued. Recovered. Duration, not determinable.

No. 15. Symptoms improved under anodyne remedies, but on the ninth

day the discharges became more frequent and bloody. On the tenth day, calomel, grs. xv, with opium, grs. iii, was given. Discharges through this day less frequent and bloody. Opium in dose of grs. iii, given at night; and continued the next day. Speedy convalescence from this date. Precise duration not determinable.

No. 16. On first day after admission into hospital, sulphate of morphia, gr. $\frac{1}{4}$, and sulphate of quinia, grs. ii, every six hours, with enemas of laudanum. Symptoms relieved, but on second day, calomel in dose of grs. x, was given, without opium, an enema of a strong solution of the nitrate of silver being added. On the third day improvement; dejections not frequent and free from mucus. The same dose of calomel, and the same injections were repeated. Fourth day, symptoms about the same. S. morphiæ, gr. $\frac{1}{4}$, and S. quiniæ, grs. ii, every six hours. Speedy convalescence. Duration, eight days.

No. 17. On admission, fifth day after attack, calomel, grs. xv, with opium, grs. iii, was given. No dejection in day time, but several during the following night. Sixth day, calomel and opium repeated in the morning, and at night opium, grs. iv, given. No dejections till midnight. After midnight, eight or ten. Third day, dejections devoid of blood and mucus. Subsequent treatment consisted of T. opii, T. kino, nitrate of silver, and sulphate of quinia. Recovered. Duration, eleven days.

No. 18. Admitted eighth day of disease. Several doses of calomel, grs. v, with opium, gr. i, given on the first day, and enema of laudanum. On second day, sulphate of morphia, sulphate of quinia, acetate of lead and brandy. Fatal on ninth or tenth day.

No. 19. Admitted five days after attack (having had no previous treatment.) The treatment consisted of the sulphate of morphia, by mouth and enema, till the fourth day after admission, when calomel, grs. ii, with Dover's powder, grs. iv, every four hours, was prescribed. On the following day the discharges were stercoraceous, large, and without blood. The day previous they had contained blood. Calomel omitted, sulphate of quinia given by the mouth, and sulphate of morphia by enema. Recovered. Duration, sixteen days.

No. 20. On admission, two days after the attack, calomel, grs. v, with Dover's powder, grs. v, was given every six hours. Ptyalism was produced. Recovered. Duration, fourteen days.

No. 21. Calomel in small doses, with opium and injections of laudanum and tannic acid constituted the sole measure of treatment. Recovered. Duration, fourteen days.

No. 22. Calomel in small doses, with opium and injections of laudanum and tannic acid, constituted the sole measures of treatment. Recovered. Duration not noted.

No. 23. Calomel in small doses, with opium, and injections of laudanum, constituted the treatment. Ptyalism was induced. Under this treatment the dejections became sero-sanguinolent, and death occurred on the seventh day.

It will be seen, on examination of the facts pertaining to the use of calomel contained in the foregoing abstracts, that in three instances only was this remedy given uncombined with opium. (Nos. 2, 3, and 16.) In one of these cases (No. 2) the effect, so far as could be judged by the subsequent symptoms, was not favorable; in another, (No. 3) it appeared to be unfavorable, and in the remaining instance, (No. 16) the dose in this case being larger, (grs. x, given on two successive days,) the effect was apparently good. It is obviously impossible to draw any decided inferences from the apparent results in these few instances.

In the remaining twenty cases, the calomel was invariably combined with opium. This being so, it is far easier to indulge opinions as to the amount of efficacy belonging to the combination, or to each remedy separately, than to establish their correctness. In four of the cases (Nos. 7, 8, 9, 12) the apparently good effect was striking. In six cases (Nos. 5, 14, 15, 16, 17, 19) the effect, so far as could be judged by the symptoms before and afterward, was good.

In one case only (No. 3) does such a comparison of the symptoms lead to a very strong suspicion of a positively bad effect.

In the remainder of the cases, either the apparent effect was negative, or indeterminate.

It is worthy of notice that in two cases (Nos. 6, 11) dysenteric discharges occurred while the patients were taking calomel which had been prescribed for the preliminary diarrhœa.

It is also to be noticed that, of the twenty-three cases in which calomel was used, five were fatal cases. This leaves six fatal cases for the remaining twenty-six cases; so that the ratio of fatality is very nearly equal in the two groups of cases distinguished from each other by the use and non-use of calomel.

What conclusions respecting the value of calomel in dysentery shall be deduced from these data? We may be better prepared to answer this question after examining the facts in the cases, into the treatment of which the use of calomel did not enter. At present, as it seems to me, we are authorized to say that the evidence of any positively pernicious effects from the use of calomel, so far as concerns the symptoms and issue of the disease, is quite small; and, on the other hand, the circumstances connected with its use in several of the cases would seem to afford support to the conjecture that it may have exerted a salutary influence.

Opium. Under the head of opium I include the use of the salts of morphia, and the pulvis opii et ipecacuanhæ. Opiates were given by the mouth, and by enema. Generally both methods of administration were conjoined. In no case in the whole collection were anodyne remedies entirely excluded from the treatment. Of the cases in which calomel was not used, in several the medicinal treatment consisted wholly of remedies of the class under consideration; but in other cases, the use of astringents, etc., were conjoined. In the cases last referred to, however, the main reliance was on the opium with which the astringents were almost always combined.

In order that the reader may have before him the facts contained in the cases in which opium was used without calomel, and be better able to compare these facts with those already presented in the cases in which calomel was given, I will adopt the course which was pursued under the head of *mercury* and proceed to give an abstract of the facts pertaining to the use of opium in the cases severally, from the treatment of which calomel was excluded.

No. 1. First day, Dover's powder. Second day, castor-oil. Third day, opium, gr. i, and in afternoon chalk mixture and paregoric. Distinct amelioration of symptoms in evening. Chalk mixture and paregoric the only remedy afterward given. Recovered. Duration, five days.

No. 2. Treated with Dover's powder and opium, and laudanum injections. Symptoms relieved. Patient passed into other hands, and duration not ascertained. Recovered.

No. 3. Laudanum enemas constituted the sole treatment. The relief was immediate. Recovered. Duration, four days.

No. 4. Opium by the mouth, and laudanum enemas, constituted the sole

treatment. Laxative required after convalescence, owing to constipation. Recovered. Duration, ten days.

No. 5. Came under observation on the seventh day. Opium and the acetate of lead, tannic acid with laudanum enemas, stimulants, and sinapisms, constituted the treatment. Fatal on ninth day.

No. 6. Treatment consisted of opium, Dover's powder, morphia,* and the acetate of lead by the mouth; laudanum injections; wine whey. Recovered. Duration, thirteen days.

No. 7. Opium and Dover's powder, with laudanum enemas. The latter produced marked relief. Recovered. Duration, eight days.

No. 8. Came under treatment sixth day. Had remedies, previously, from a German empiric. No relief obtained. Immediate relief followed the use of opium, gr. i, every four hours. This the only treatment. Recovered. Duration, ten days.

No. 9. Laudanum enemas constituted the sole treatment. These produced prompt and marked relief. Recovered. Duration, seven days.

No. 10. T. opii camph. by mouth, and laudanum enemas. Symptoms promptly relieved by these measures. No other treatment. Recovered. Duration, seven days.

No. 11. Opium in small doses, Dover's powder, morphia, and the acetate of lead,† constituted the treatment. Recovered. Duration, ten days.

No. 12. Morphia, gr. ¼, with quinia, gr. ii, every four hours, constituted the treatment for four days. Then, opium, grs. ii, every four hours, and morphia, grs. ss., by enema. This was the sole treatment. Recovered. Duration not determinable.

No. 13. Admitted into hospital a week after date of attack. Morphia, gr. ¼, every six hours. This was the sole treatment, except quinia, grs. ii,

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* For brevity, the terms morphia and quinia will be used. The salt of morphia usually employed was the sulphate.

† In making the preliminary analysis, whence these abstracts are taken, the doses of the remedies are frequently not stated, nor the immediate apparent effects. This is the explanation of the omissions on these points which will be noticed. It would require great labor to supply the omissions, and the object is not deemed of sufficient importance.

three times the day before his discharge. Recovered. Duration, twelve days.*

No. 14. Admitted on fourth day of disease. First day, morphia, gr. $\frac{1}{4}$, every four hours, and gr. i, as suppository. Second day, morphia, gr. ss., acet. plumbi, grs. iv, every six hours, with enema of nit. argenti, grs. x, aquæ ℥i., followed by enema of T. opii, ℥ii. Third day, morphia, gr. ss., every six hours. Fourth day, morphia continued, with enemas of morphia and the acetate of lead. Fifth day, treatment continued. Sixth day, improvement. Morphia, gr. $\frac{1}{4}$, and quinia, grs. ii, every six hours. Seventh day, dysenteric discharges ceased. Treatment continued. Subsequently some return of dysenteric discharges, and morphia, gr. ss., every six hours, was resumed. A dose of castor-oil was given, followed by opium, grs. iii. Recovered. Duration, nine days.

No. 15. Admitted a week after date of the attack. Morphia, gr. $\frac{1}{4}$, with quinia, grs. ii, continued regularly for a week; and, with laudanum enemas, constituted the sole treatment. Recovered. Duration, fourteen days.

No. 16. Admitted third day of disease. Morphia, gr. $\frac{1}{4}$, and quinia, grs. ii, every six hours, with laudanum enemas. Fourth day of disease, improvement. Morphia, gr. ss., morning and evening, and enemas of morphia, gr. i, and acetate of lead, grs. x. Fifth day, dejections thin, feculant, and free from blood and mucus. Treatment continued. Progressive improvement. Castor-oil given on the ninth day, and its operation followed by opium, grs. iii. Recovered. Duration, sixteen days.

No. 17. Admitted third day of disease. Morphia, gr. ss., morning and evening, with enemas of morphia, gr. i, and acet. plumb., grs. x. This treatment continued till convalescence. Recovered. Duration, ten days.

No. 18. Admitted fourth day of disease. Had received treatment, nature of which was unknown. Castor-oil, and after operation, morphia, gr. ss., morning and evening, with enemas of morphia, gr. i. Second day, treatment continued. Third day, morphia, gr. $\frac{1}{4}$, with quinia, grs. ii. Continued till convalescence. Recovered. Duration, twelve days.

No. 19. Admitted seventh day of disease. Dover's powder, grs. x, with

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* The duration here, and subsequently, dates from the attack, not from the time of admission into hospital.

laudanum enemas, and suppository of morphia, gr. i. Second day, Dover's powder, grs. x, and suppository of morphia, gr. i. Third day, castor-oil, and after operation, Dover's powder, grs. x, and suppository of morphia. Fourth day, marked improvement. Morphia, gr. $\frac{1}{4}$, with quinia, grs. iii, every six hours, and enema of nitrate of silver, grs. xx, in an ounce of water. Fifth day. Continued morphia and quinia, and repeat enema. The morphia and quinia continued until convalescence. Recovered. Duration, twenty-one days.

No. 20. First day after admission, opium, gr. i, every four hours, and enema of morphia, gr. i. Second day, opium, gr. i, every three hours, and enema of nitrate of silver, grs. x, in two ounces of water. Third day, morphia, gr. $\frac{1}{4}$, acetate of lead, grs. ii, every four hours. Carb. of ammonia and brandy. Fourth day, opium, gr. iss., every four hours, with enema of morphia and tannic acid. Brandy and carb. ammoniæ. Fifth day, opium, grs. ii, acetate of lead, grs. iv, camphor, grs. iii, every six hours. Enema of nitrate of silver, gr. i, in two ounces of water. Fatal on the eighth day after admission.

No. 21. Admitted second day of disease. First day, castor-oil, and operation followed by opium, gr. i, every four hours, and laudanum enema. No evacuation after enema for entire night. Second day, discharges of blood and mucus returned. Opium, gr. i, every four hours, and enemas of morphia, gr. i. Third day, morphia, gr. $\frac{1}{4}$, every four hours. Fourth day, discharges natural. Recovered. Duration, seven days.

No. 22. Admitted second day of disease. Treatment consisted of opium, gr. i, to grs. ii, every three hours, and laudanum enemas. Fatal on the sixth day.

No. 23. Morphia, gr. $\frac{1}{4}$, every four hours, and laudanum enemas. Third day, opium, gr. ss., and acetate of lead, grs. ii, every two hours. Fourth day, morphia, gr. ss., hourly, for several hours. Brandy. Fatal on the eighth day.

No. 24. Patient aged 11 years. Morphia, gr. $\frac{1}{8}$, and laudanum enema. Discharges arrested immediately. Recovered. Duration, four days.

No. 25. Treatment consisted at first of morphia, gr. ss., every four or six hours, and laudanum enemas. Second day, opium, gr. ss., and acetate of lead, grs. ii, hourly. Third day, the same. Fourth day, opium, gr. i, hourly,

with brandy. Fifth day, opium, gr. i, every alternate hour, and grs. ii, every alternate hour. Sixth day, opium, grs. ii, hourly. This was continued for several days, with marked improvement as respects frequency of the dejections, but the sero-sanguinolent character which they had at first was preserved. Tannic acid and matico given in this case. Fatal on the seventeenth day.

No. 26. Treatment consisted in the use of morphia, and sometimes, conjoined, the acetate of lead. Stimulants were given freely. Dejections sero-sanguinolent from an early period in the disease. Morphia given in doses of from one to two grains every alternate hour, without inducing narcotism, the symptoms becoming aggravated on suspending the use of morphia. Fatal on the ninth day.

An examination of the facts, as thus presented, in this group of cases, with reference to the immediate apparent effect of the use of opium without calomel, leads to the following results: The effect appeared to be strikingly good in four cases (Nos. 3, 7, 8, 24) which it will be observed, is precisely the same number as in the former group.

It appeared to be decidedly good, but in a less striking degree, in nine cases (Nos. 1, 2, 4, 9, 10, 14, 15, 16, 17.) The number of cases in which this effect is apparent in the present group exceeding that in the former group by three.

The effect is indeterminate, owing to the conjoined use of other measures, and, in some instances, defect in making the analysis, in the remainder of the cases, exclusive of those which were fatal.

No evidence appears of an unfavorable effect in any case.

Six of the cases in this group were fatal. In some of these cases, it may be remarked, the immediate apparent effect of the use of opium was good, as shown by a marked aggravation of the symptoms when the remedy was temporarily suspended. This was true especially in the cases numbered 25 and 26.

The inquiry may arise, how do the cases, in the two groups, in which a striking immediate effect was apparent, in the one group from calomel and opium, and in the other group from opium alone, compare as respects the quantity of opium given. If the reader will take pains to refer to the four cases alluded to in each group, (viz: in the first group Nos. 7, 8, 9, 12, and in the second group Nos, 3, 7, 8, 24) he will find that more opium was given with the calomel in the cases belonging to the first group, than was given alone in those belonging to the second group!

On comparison, also, of the cases in the two groups in which a good effect was apparent, but less striking in degree, it will be found that the quantity of opium given in both is not very far from equal.

A perfectly fair comparison of the results of treatment in the two groups, requires that the cases should be as equal, in all respects, as possible. The two groups should embrace about the same number of mild, and severe cases. The cases occurring at different seasons should be equally divided, since we have seen that the tendency to a fatal result is greater in some seasons than in others. About an equal number, also, of hospital cases, and those in private practice, should belong to both. In determining the facts as far as practicable with reference to these points, it will suffice to limit the examination to those cases, in both groups, in which the immediate effect of the treatment appeared either strikingly, or decidedly good. These cases, in the first group, *i. e.*, the group of cases treated with calomel and opium, are ten in number. In the second group, *i. e.*, the cases treated without calomel, they are thirteen in number.

So far as judgment can be formed by a general survey of the histories, the two lists embrace about an equal relative proportion of mild and severe cases.

Of the ten cases in the first group, five were hospital cases, and five occurred in private practice. Of the thirteen cases in the second group, four were hospital cases, and nine occurred in private practice.*

Of the ten cases in the first group, all the ten occurred in 1849. Of the thirteen cases in the second group, four occurred in 1849, four in 1848, two in 1846, and in 1838, 1847, and 1851, in each year one case. In explanation of the difference in the two groups as respects the years, it should be stated that in 1849 I prescribed calomel and opium in most of the cases coming under observation, and in but a small portion of cases before, and after that year.

Directing attention to the fatal cases among those treated with calomel and opium, and those treated with opium without calomel; of the five fatal cases in the first group, one was a hospital case, and the remaining four were in private practice. Of the six fatal cases in the second group, two were hospital cases, and four occurred in private practice. In this particular they are as equal as possible.

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* Of the whole twenty-three cases treated with calomel and opium, nine were hospital cases, and fourteen occurred in private practice; and of the whole twenty-six cases treated without calomel, eleven were hospital cases, and fourteen occurred in private practice. So that in the distribution of the cases as respects this point, the two groups are about as equal as possible.

Of the five fatal cases in the first group, four were in 1849, and one in 1850. Of the six fatal cases in the second group, one was in 1848, two in 1850, one in 1851, and two in 1852.

Of the five fatal cases in the first group, one occurred in July, three in August, and one in September. Of the six fatal cases in the second group, one occurred in July, two in August, and three in September.

Repeating now an inquiry before made, 'What conclusions respecting the value of calomel in dysentery shall be deduced from these data,' a review of all the facts seems to warrant the belief that, so far as these observations furnish evidence on the point, it is adverse to the opinion of any favorable influence being exerted by this remedy on the morbid processes involved in the disease. It may be said, and with justice, that the number of observations is insufficient to settle positively this practical question; but admitting this, are the notions on the subject more likely to be nearer the truth which are formed without any interrogation of recorded cases?

If the conclusion we have deduced respecting the value of calomel be correct, it follows, assuming the immediate apparent effect of the calomel and opium in the first group of cases not to have occurred irrespective of therapeutic influences, that the opium given in combination with the calomel was the efficient agent. These cases, therefore, as well as those in the second group, go to show the efficacy of opium in the management of dysentery. It would certainly be more satisfactory, in a scientific point of view, if we were able to compare the results which we have presented, with the facts contained in an equal number of cases which were treated without opium; but there is not much prospect of such a collection of cases being placed at the disposal of the analyst.

There still remains a point of comparison between the cases treated with calomel and opium, and those treated with opium alone, which may have some interest. This is the relative duration of the disease in these two groups. In examining with reference to this point, it will be proper to divide the cases in each group into (1) those treated in hospital, and (2) those treated in private practice. Making this division the results are as follows:

1*st. Mean duration of disease in four hospital cases treated with calomel and opium:*—	*Do. in eight hospital cases treated without calomel:*—
13½ days.	13¼ days.

The similarity in these results is interesting.

2d. *Duration in eight cases in private practice treated with calomel and opium:*—	*Do. in nine cases in private practice treated without calomel:*—
$6\frac{1}{8}$ days.	7 6-9 days.

The duration, it is observed, is somewhat greater in the cases treated without calomel. It may be a question whether this slightly greater duration be owing to difference of treatment, or to a proportionately greater severity of disease.

The fatal cases are not included in the above.

3d. *Duration in five fatal cases treated with calomel and opium:*—	*Do. in five fatal cases treated without calomel:*—
10 4-5 days.	10 2-5 days.

Here, again, the coincidence developed by the comparison is striking.

Astringents, and topical applications by means of enemas. The astringent remedies used were the acetate of lead, tannic acid, the extract of rhatany, the nitrate of silver, and the tincture of kino. They were used in a small proportion of the cases only, and always in conjunction with opium, or the salts of morphia, with or without the addition of calomel. The difficulty attending the task of endeavoring to determine by an analysis of the histories whether any immediate effects could be attributed to these several remedies in the different cases, and the small probability of arriving at results sufficient to repay the labor, lead me to content myself with stating the fact simply that these remedies entered into the treatment to a limited extent.

Topical applications by means of injections were used in several cases. The tannic acid, in mixture, was sometimes given in that way, always in conjunction with laudanum. The apparent effect, occasionally, was to render the opiate more likely to be retained. This was the object for which it was given.

The acetate of lead, in solution, was given repeatedly, always conjoined with laudanum, or the acetate of morphia, the object being to obtain a local astringent operation. What value belongs to this remedy, thus used, does not appear in the histories.

A strong solution of the nitrate of silver was given, by enema, in a small number of instances. The facts pertaining to this measure are briefly as follows:

No. 1. Nitrate of silver, grs. x, dissolved in two ounces of water, was given without any marked effect. The case ended fatally.

No. 2. Nitrate of silver, grs. xx, in an ounce of water, was given; it occasioned considerable pain, and no other apparent effect. It was subsequently repeated, and again occasioned severe pain, without any appreciable influence being produced on the disease.

No. 3. Nitrate of silver, grs. x, in an ounce of water, was given. It occasioned pain, and was shortly followed by a laudanum enema.

No. 4. Nitrate of silver, grs. x, in an ounce of water, was given at 5, P. M. and repeated at 9, P. M. It does not appear to have occasioned pain. The next day there was marked improvement, and convalescence speedily occurred.

No. 5. Nitrate of silver, grs. xx, in two ounces of water, was given, and, at the same time, calomel, grs. x, uncombined with opium, or any other remedy. The following day there was a marked improvement in the symptoms. It does not appear to have occasioned pain in this instance.

No. 6. Nitrate of silver, grs. x, in an ounce of water, was given in this case, and repeated twice daily, for several days. The patient was a child four years of age. The injections appeared to occasion marked relief; no pain followed, and the frequency of the dejections was apparently diminished by them.

The solution of the nitrate of silver was administered by means of a small glass syringe, and could not have been projected above the lower part of the rectum. Under these circumstances it is obvious that the measure can only be of service in relieving symptoms dependent on the morbid condition in that part of the intestine, the topical application extending only over a small portion of the mucous surface affected, generally, in this disease.

Injections of creasote, combined with mucilage, were administered in a few instances, the objects being to relieve the tenesmus, and favor the retention of anodyne enemas. Their success does not appear from the histories.

Injections of laudanum, or a solution of the sulphate of morphia, belong under the head of opium. They were found more or less useful in almost every case, and in some instances, the apparent effect was very marked. A few cases were treated by these injections exclusively. Suppositories were occasionally used. The advantage of injections was often lost by their being quickly expelled. Inability of retaining them was a difficulty which generally followed, after a time, their frequent repetition. Under these circumstances suppositories sometimes were more successful.

The warm hip bath was found very serviceable in a few cases, the patients

being children. The local symptoms were relieved in a striking manner by this measure. Particularly in one case, (the patient four years of age,) in which the disease persisted for some time, the hip-bath produced a soothing effect and suspended for a time the frequent evacuations, after enemas had ceased to be retained.

Finally, tonic remedies, and stimulants, were employed more or less. The sulphate of quinia was given in a number of cases, in combination with opium, or the sulphate of morphia. Diffusible stimulants were given whenever the symptoms denoted failure of the vital forces, as shown particularly by feebleness and frequency of the pulse. Brandy was the form of stimulant generally used, and the quantity given was in proportion to the indications of a tendency to a fatal issue by asthenia.

SUPPLEMENT

TO

CLINICAL REPORT.

Morbid Anatomy of Dysentery. Prior to offering some remarks on the pathology, causation and management of acute dysentery, which I propose shall form a supplement to the clinical report published in several successive numbers of the Buffalo Medical Journal, the morbid anatomy of the disease claims consideration. The important bearing of the abnormal appearances disclosed by dissection on the study of most diseases, in the several aspects just named, needs no comment, and there are some special reasons why it is desirable, before entering on a discussion of the topics which will subsequently come up, to consider the post-mortem changes pertaining to dysentery. Knowledge of these changes will enable us to connect with them, and thereby better understand some of the more important of the facts developed by means of clinical observations; and it is absolutely essential as a basis of correct notions respecting the pathology, causation and management of the disease.

The opportunities afforded by the cases which I have analyzed, and others coming under my own observation, for the acquisition of facts pertaining to the morbid appearances in dysentery, have been quite limited. The whole number of cases proving fatal is not large, and an examination, post-mortem, was practicable in only a portion of this number. For contributions to our knowledge of the morbid anatomy of this, as of other diseases, we must look mainly to the labors of persons connected with hospitals where the number of cases received is sufficiently large to supply ample material, and, at the same time, every facility furnished for the study of the phenomena of the dead-house. Pre-eminently such an institution is the Imperia

Royal General Hospital of the Austrian capital, (Vienna,) containing 104 wards, receiving, in a single year, 20,545 patients, of whom 2678 died. The professorship of Pathological Anatomy, in connection with this hospital, is held by Dr. Carl Rokitansky, who may, perhaps without invidiousness, be said to be the most distinguished of morbid anatomists now living. As the highest authority on any subject within the range of this department of medical science, and from the very great advantages for observation which he enjoys,* his account of the morbid appearances in dysentery commands entire confidence in its completeness and accuracy. I shall accordingly copy the section of his treatise on pathological anatomy devoted to a description of these appearances. I am led to do so the more because a translation of this treatise not having as yet been published in this country, it is accessible to comparatively but few members of the profession. A portion only of the entire work has, as yet, been prepared by the author. This portion, consisting of three volumes, has been translated, and issued among the volumes published annually by the London Sydenham Society. Its circulation is therefore limited to the subscribers to the publications of that society. The following extract from the second volume† of the work, contains Rokitansky's description of what he terms the *dysenteric process,* without curtailment or condensation:

"*The dysenteric process.* We are acquainted with the dysenteric process as a substantive‡ disease of the mucous membrane of the colon, and inasmuch as it is here presented in its most exquisite form, its habitat has been correctly fixed ever since the days of Hippocrates.

"The dysenteric process is divisible into four natural degrees or forms.

"In the lowest degree, the mucous membrane commonly presents a layer of a thin secretion, of a dirty gray and reddish color, underneath which, certain parts, commonly the projecting folds of the mucous membrane, are reddened and swollen. In this manner striæ are produced, which more or less

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*"Rokitansky differs from all other pathologists, in not engaging in the study or treatment of disease during life; he is not a practical physician, and seldom sees one of the many hundreds of cases whose bodies he dissects."—*Preface to Manual of Pathological Anatomy by English translator.*

† Published in 1849.

‡ The term *substantive,* as thus used by Rokitansky, and some other writers, of late, is presumed to signify an affection which, so far as our actual knowledge goes, is the chief fundamental local manifestation of the disease, not an affection secondary and symptomatic of some other one.

encircle the intestine. The epithelium is either raised in the shape of small vesicles which contain clear serum, or it forms a grayish white layer, resembling the mealy scurf of the epidermis, an appearance which probably induced Linnæus to term dysentery *scabies intestinorum interna.* The subjacent mucous membrane seems excoriated, slight pressure induces hemorrhage, and it may be easily detached in the shape of a light red sanguineous pulp; its submucous cellular tissue appears infiltrated.

"The anatomical characters may be summed up as—swelling, injection and reddening, softening, (red and bleeding,) serous exudation in the shape of a delicate vesicular eruption, and consequent branny desquamation of the epidermis, (epithelium?)

"In the second degree, the textural alterations are not limited in the manner described, but extend over a larger surface, still, however, presenting a greater development at one part than at another. The mucous membrane is invested to the same extent, by a dirty gray layer, consisting of desquamated epithelium, and a thick glutinous exudation; or this may have been already removed, and the subjacent mucous membrane, in either case, appears converted into a soft, sanguineous, pale red and yellowish gelatinous substance, which may be easily detached. The internal surface of the intestine commonly presents more or less numerous protuberances, which closer examination proves to consist of a very copious infiltration of the submucous cellular (areolar) tissue; these projections or tumors were first observed by Hewson and Pringle; other authors speak of them as warty tubercular swellings, or fungoid excrescences, and M. Gély has lately termed them *hypertrophie mamelonnée du tissue sousmuqueux.* They correspond to those points of the mucous membrane at which the morbid affection is most developed; with the exception of slight redness and intumescence, especially in the circumference of the follicles, an increase in the mucous secretion, and a slight desquamation of epithelium, the intervening parts of the mucous membrane do not generally offer any marked textural changes. The entire portion of intestine is generally in a state of passive dilatation; it is distended with gas and with a dirty brown fluid, which consists of the most different materials, such as intestinal secretions, epithelium, lymph, blood and fæces; its coats are thickened, and the submucous tissue particularly is in a state of tumefaction. At this stage we meet with the laminated and tubular coagula in the evacuations, described by ancient and modern authors, especially if the exudation be of a more plastic character.

"Occasionally the affection of the follicles predominates and is accompanied by irritation, exhausting secretions, and softening: these probably constitute

the characteristic signs of the so-called catarrhal or white dysentery, but which, in an anatomical point of view, is the same follicular affection of the colon as that which we have already described as accompanying chronic diarrhœa.

"In the third stage, we find the protuberances more closely set, so as to produce an uneven, lobulated appearance. The mucous membrane that invests these protuberances partly retains the above described conformation; in part it is converted into a slough, which is here and there blended with the desquamated epithelium and the exudation, and is firmly attached to them; it is of a dark-red or blackish-brown, suggilated, or grayish-green color; or the mucous membrane may have disappeared, so as to expose the infiltrated submucous cellular tissue to which the remnants of the mucous membrane remain attached in the shape of solitary, dark-red, flaccid, and bleeding, vascular tufts, or as dilated follicles, which are easily removed. The interstices of the mucous membrane are the seat of the affection in a lower degree. The protuberances occasionally are found to have coalesced, and the intestine then presents an uneven plicated surface, accompanied by an equable degree of infiltration and thickening of its parietes; the mucous membrane is uniformly affected over a large extent, and there are no free interstices.

"The contents of the intestine are of a dirty-brown or reddish, ichorous, fetid, flocculent and grumous character.

"In the fourth and highest degree, the mucous membrane degenerates into a black, friable, carbonized mass, which may often be subsequently voided in the shape of tubular laminæ, (so-called mortification of the mucous membrane.) The submucous cellular tissue appears to be previously infiltrated with carbonified blood, or a sero-sanguinolent fluid; or it is pallid, and the blood contained in its vessels is converted into a black solid or pulverulent mass; subsequently it shows a purulent infiltration, in consequence of the reactive inflammation which is induced in the lower healthy strata, for the purpose of eliminating the gangrenous portions.

"The affected portion of intestine, which contains a putrid, brownish-black fluid, resembling coffee grounds, may appear in a state of passive dilatation, as above described, but it is much more frequently collapsed; and if the two highest degrees continue for any length of time, the muscular coat will be reduced. The tissue of the latter is condensed, pale, ashy, peculiarly elastic and friable, and analogous to the yellow fibrous tissue.

"The peritoneal coat presents, in the higher, and particularly in the highest degree of the affection, a dirty-gray discoloration, and a total absence o

lustre; at intervals it presents a dilatation and injection of its capillary vessels, and is invested with a brownish, ichorous exudation; occasionally the mesocolon, and even the mesenteric laminæ that have been in contact with them, participate in the affection. This affords a means of distinguishing dysenteric disease of the intestine on its outer surface.

"The glands of the mesocolon present a corresponding tumefaction, but they are of a dark-blue color, congested, and tumefied; but we have not succeeded in detecting in them a peculiar (specific) solid morbid product, as we have in typhus.

"The mucous membrane of the colon is, as we have already observed, the seat of the dysenteric process; and we may state it as a rule that its intensity increases from the cœcal valve downward, and consequently is met with, in the most fully developed state, in the sigmoid flexure and in the rectum. It not unfrequently passes beyond the cœcal valve, toward the ileum, but is here only seen in its mildest form.

"It commonly runs an acute course, though it is frequently chronic in the milder degrees; this, however, does not materially alter its character.

"The manner in which it terminates varies:

"1. The disease is fatal, in consequence of the more or less rapid, or more or less penetrating destruction of tissue, and the coincident exhaustion.

"2. The disease may terminate in cure, if the mucous membrane has not become disorganized in the manner above described, the normal cohesion softening, and a new layer being generated under the desquamated epithelium.

"3. In the higher degrees of the disease, when disorganization has occurred in one of the above described processes, and the mucous membrane has suffered more or less extensive destruction, one of two results ensues:

"*a*. A real cure of the loss of substance, with consolidation of the abraded portions of the intestine follows; or

"*b*. The entire process assumes a low chronic form, the specific nature of the disease is lost, and we have atomic inflammation and suppuration of the intestinal coats.

"If a cure ensues, the portions of mucous membrane which were affected in a lower degree are first restored to their normal condition; between them are small patches, or more extensive spaces, with a sinuous circumference, at which the mucous membrane is deficient, and the submucous, pale, infiltrated cellular tissue is exposed. Not unfrequently we perceive attached remnants of mucous membrane adhering to these parts. The exposed submucous cellular tissue is gradually converted, as proved by cadaveric examinations at the most various periods after the cessation of dysentery, into serous tissue;

this is further condensed into sero-fibrous tissue, and by it the sinuous portions of mucous membrane, at the edge of the impaired surface, are, like the isolated remnants of mucous membrane, compressed into warty, pediculated, (polypous,) prolongations, and thus the originally sinuous circumference obtains a fringed, dentated appearance. In cases in which the loss of substance is inconsiderable, the new tissue may contract so as to bring the edges of the mucous membrane into apposition with one another and with the polypous remnants of mucous membrane, and the cicatrix is then represented by a large number of aggregated warty excrescences of the mucous membrane, between which the sero-fibrous basis from which they proceed, may be detected.

"In cases of extensive destruction of substance, the approach of the edges is rendered impossible; the deeper layers of the tissue, which takes the place of the mucous membrane, is frequently condensed into fibrous bands, which form corded projections into the intestinal cavity, interlace with one another, and not unfrequently encroach upon the caliber of the intestine in the shape of valvular or annular folds, thus giving rise to a stricture in the colon of a very peculiar form. This mode of regeneration is the more remarkable, as it closely resembles that following the destruction of the œsophageal mucous membrane by mineral acids.

"In the second case the specific affection terminates after having previously given rise to more or less extensive disorganization, but without being followed by the healing process just described. The entire disease now assumes a chronic character, and appears on the residual portion of mucous membrane as chronic catarrhal inflammation, the follicles being more or less prominently affected, and suppuration occurring in the shape of sinuses and abscesses under the mucous membrane, and between the external coats of the intestine; at the same time the intestinal canal contracts, its coats assume a rusty, dark-blue color; there is occasional exacerbation of the peritoneal irritation, and the intestine becomes fixed in consequence of exudation and infiltration in its cellular sheath and its mesentery. In this case the mucous membrane is found of a dull, red color, tumefied, and invested by a copious secretion of a glairy or purulent character; the follicles, particularly those at the end of the colon, are dilated, distended by a glassy pituita, or in a state of suppuration; there are small abscesses of the size of a hemp seed or pea, under the mucous membrane, and in the cellular tissue lying between the muscular fibres. These abscesses open upon the mucous membrane by the suppurating follicles or by other minute orifices, forming fistulous passages in various directions, and penetrating into deeper parts, so as to reach the

peritoneum, and there induce inflammation; or they give rise, in the vicinity of the rectum, to the formation of large abscesses, as described by Morgagni.

"The concurrent contraction of the intestinal tube probably causes in this case, also, a diminution of its caliber, but this form presents no peculiarity to distinguish it from the effect which may be produced in every case of catarrhal inflammation attended by repeated exacerbations.

"The dysenteric process occurs in its exquisite and primary form in the colon only, with the exception of the mucous membrane of the female sexual organs, where it affects the uterine mucuous membrane in the shape of the puerperal disease.

"The dysenteric process offers the greatest analogy to the corrosion of the mucous membrane produced by a caustic acid. The consequent destruction of the tissues, as well as the phenomena of reaction, present, throughout, a close resemblance in both cases, and the stricture produced in the œsophagus has no analogue but that resulting in the colon from the dysenteric affection.

"We have found a further analogy with the dysenteric process in the erodent effect produced upon the mucous membrane of the œsophagus by the gastric juice in schinous stenosis of the pylorus."

As already remarked, the foregoing account of the anatomical lesions of dysentery is selected because the author, at the present moment, may be regarded as the highest living authority on questions pertaining to morbid anatomy. It is proper to state that other observers have found the intestinal follicles more prominently the seat of morbid appearances than appears in the description by Rokitansky. This is the case with Dr. Finger of Prague, who studied the disease as it prevailed in that city, in an epidemic form, between the years 1846 and 1848. During that period not less than 231 dissections of subjects dead with dysentery, were made in the city hospital.*

The question, how far the disease involves an affection of the follicles, has given rise to much discussion. The pathological bearing of this question is not unimportant. It must be admitted that the follicles may be more or less implicated, but it would seem to be established that this is not an uniform, and, therefore, not an essential element of the disease.

Dr. Finger, as well as other observers, describes, as prominent among the morbid appearances, the presence of more or less solidified fibrin, or lymph,

* Vide Brit. and For. Med. Chir. Review, 1852, and Buffalo Med. Jour., 1852.

adhering to the mucous membrane; and all agree as to the frequency of loss of substance, or ulcerations, more or less extensive, of this membrane.

An interesting, and also important inquiry relating to the intestinal lesions in dysentery, is, whether they have a special character, or are simply due to ordinary inflammation of greater or less intensity. The bearing of this inquiry on the pathology of the disease is obvious. This point is one of those pertaining to the morbid anatomy to which there will be occasion to refer in another section of this supplement. There has been a difference of opinion among writers respecting this point. Some think that the lesions are sufficiently explicable by attributing them to ordinary inflammation existing in varying grades of intensity; others that something more than ordinary inflammation is involved. With the facts before him the point is referred to the judgment of the reader. I will only add, that, in the mind of the writer, the lymphatic exudation, the frequent implication of the follicles, and the sloughing of portions of the membrane seem to denote a peculiar form of inflammation, somewhat characteristic of the disease.

Another inquiry connected with the morbid appearances is this: To what extent are they present in all cases of dysentery? The appearances, of course, can be studied only in cases which prove fatal; and they have been studied almost exclusively in cases of epidemic dysentery, since sporadic cases very rarely end fatally. Now, how far have we a right to infer that the changes found after death exist in those cases which recover, and more especially in mild sporadic cases? It is sufficiently clear that in cases in which the disease is promptly and completely arrested, or ceases, after a brief duration, of its own accord, the anatomical lesions must be slight. This fact is true of a large proportion of sporadic cases, and of a greater or less number of the cases occurring during the prevalence of epidemic dysentery. If lesions existed in these cases to any extent, it would be impossible for all symptoms of the disease to cease so quickly and completely as is frequently observed. It has been seen already that the symptoms show a marked difference between ordinary sporadic and epidemic dysentery. It is probable that a corresponding difference obtains in the local morbid changes. The view which appears to the writer most consistent with what facts we possess is, that in ordinary sporadic dysentery there exists simple inflammation of the mucous membrane of the large intestine, generally mild in intensity, frequently not extensive, and sometimes quite limited; while in grave cases of the epidemic form of the disease, the inflammation is not only more intense and extensive, but possesses a special virulence or malignancy. An analogous difference is observed in other local inflammations, for example, between pneumonia as it is

ordinarily presented, and pneumonia typhoides. The consideration of this topic falls properly under the head of the pathology of dysentery.

Another important inquiry relates to the existence of anatomical lesions of other organs than the intestine in fatal cases of dysentery. On this point the researches of Dr. Finger may be cited. In 231 cases there were found other lesions, as follows:—tuberculosis in 48 cases; cancer in 48 cases; typhus (preceding or following the dysentery) in 11 cases; lobular pneumonia in 16 cases; croupous pneumonia in 11 cases; puerperal fever in 10 cases; secondary syphilis in 7 cases; Bright's disease in 9 cases; chronic bronchitis in 5, and recent bronchitis in several casess; heart disease in 3 cases; diabetes in 1 case. As to the liver it was generally pale and anæmiated; in one case there was inflammation of the vena portæ, and in not a single case was there abscess.*

These results show conclusively that the anatomical characters of dysentery are confined to the intestinal canal. The several lesions found in certain proportions of cases evidently denote the accidental coincidence of other affections, having no essential connection with the dysenteric disease. The facts with respect to the liver are commended to the notice of those practitioners who are accustomed to regard this organ as playing an important part in the pathology of the disease. It is true that in observations made in tropical countries, abscesses, and other lesions of the liver are found in a certain proportion of cases; but this only shows the more frequent occurrence of affections of this organ in these countries.

Finally, with reference, not only to the pathological character of dysentery, but to prognosis, and measures of therapeutics, it should be borne in mind that in severe cases of the disease, especially in its epidemic form, the intestinal lesions are probably always considerable, both in intensity and extent; and that in the highest grade of severity, disorganization of the affected membrane takes place in a degree rendering restoration difficult, and often hopeless.

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* Brit. and For. Med. Chir. Review, 1852.

REMARKS ON THE CAUSATION, PATHOLOGY, AND MANAGEMENT OF DYSENTERY.

CAUSATION.

The analysis upon which was based the clinical report preceding this supplement, developed nothing of consequence relating to the causation of dysentery. Assuming that, were the disease preceded by any obvious circumstances to which its production might be fairly attributable, they would not altogether have escaped attention in recording the histories, this negative result of the analysis is not without significance. It leads to the conclusion that dysentery is not uniformly, and indeed rarely is preceded by apparent causes. Is this a just conclusion? I have not propounded this inquiry before, because I did not wish to engage in discussions leading beyond the circle of facts developed by the analysis. If systematic treatises be consulted, it will be found that various causes have been supposed to be adequate to the production of the disease. The most prominent among these supposed causes are sudden atmospherical changes; indulgence in acid, unripe fruit; excesses in eating or drinking, and, on the other hand insufficiency of food; the effluvium from decomposing animal matter, and what is commonly known as marsh miasmata. The competency of each and all these causes to produce dysentery, especially in its epidemic form, may be doubted, from the difficulty of frequently, if not generally, tracing to them individual cases, and, on the other hand, the frequency with which they exist without giving rise to this disease. The occasional apparent connection between them and the disease denotes nothing more than coincidence, not the relation of cause and effect. This, of course, is not saying but that they may exert, like any other circumstances affecting unfavorably the organism, an auxiliary influence, either by increasing its susceptibility to disease, or giving greater activity to the efficient cause or causes. The question is, not what may contribute to the development of the disease and thus indirectly sustain a causative relation to it, but to what agency, or agencies, is the disease specifically due: in other words, what cause or causes are capable of producing this particular disease, with, or without the conjunction of other morbid influences? I think it must be admitted that the several causes that have been mentioned rest on insufficient evidence. Atmospherical changes, indulgence in acid unripe fruit, excesses in eating and drinking, and deprivations, are circumstances

existing, to a greater or less extent, in all places, and in each successive year; but cases of dysentery occur in some places and years very infrequently, and at other places and years frequently, without any corresponding variations in these supposed causes. Moreover, in the majority of individual cases, patients attacked with the disease have not been more exposed to these supposed causes than hosts of others who escape; and often the disease attacks those who are much less exposed than many others. The evidence of its dependence on the effluvium of decomposing animal matter may be disposed of in a similar manner. The apparent connection in a few instances proves no more than either a coincidence, or an indirect influence. Its causation by marsh miasmata rests on evidence, if possible, still more slender. The unknown cause of periodical fevers, thus designated, exists to a very great extent, as shown by the prevalence of these fevers, without dysentery; and, in fact, dysentery, as a secondary affection, oftener accompanies typhus, than intermittents or remittents. The latter, as is well known, are singularly exempt from abdominal symptoms. The prevalence of dysentery in situations in which miasmatic influences exist is certainly not the rule, and, hence, if any connection exists, we have no right to presume that it is more than that which would apply to any agency exerting a deleterious effect on the organism, and therefore predisposing alike to other affections as well as dysentery.

Dysentery, like all diseases, must of course have its adequate cause, or causes, and if the circumstances to which it is generally attributed are found to be insufficient, the question arises, what morbid agency, or agencies, are competent to produce it? When our knowledge of the causation of numerous, and indeed of most diseases is considered, it is not surprising that the present state of medical science does not authorize a satisfactory answer to this question. But although we may not be able to specify the causes of disease, we may possibly arrive at some important conclusions respecting their character. That dysentery, especially in its epidemic form, requires for its production a *special* or *specific* cause seems susceptible of proof. This is an important point, not only as a scientific fact, but in its practical bearings. By a special or specific cause is meant a morbid agency so peculiar that under favorable circumstances it will invariably give rise to a particular kind of disease. Thus the poisons producing the different eruptive fevers we know must be each peculiar in its character, and all essentially different from each other. They severally give rise to different forms of disease, and each always to the same form. These diseases, in other words, respectively proceed from the operation of special or specific causes. Now, the evidence appears to be conclusive that dysentery, in like manner, stands in the relation of dependence

to a pathogenetic principle peculiar to itself. What are the considerations which lead to this conclusion? In reply to this interrogatory the following considerations are submitted, their application not being confined to dysentery, but extending to various other diseases:

(*a.*) The absence of obvious causes properly leads to the presumption of an occult cause. In this consists the significance, already referred to, of the inability to trace cases of dysentery to any of those causes to which the disease is loosely attributed by systematic writers. In general, when we fail to discover the evidence of any causative relation between a disease and surrounding circumstances, we are to suspect an occult cause. A cause is not necessarily special because it eludes investigation, but it is undoubtedly true that a large proportion of occult causes are special in their character.

(*b.*) The fact that the prevalence of dysentery is confined to certain places and periods tends to show its dependence on a special cause. If ordinary causes alone sufficed to produce the disease, there might, it is true, be considerable variations in the extent of its prevalence, as well as in other respects, owing to corresponding differences pertaining to these causes, but these variations could hardly be so striking as they are, inasmuch as the differences in ordinary causes, at different times and places, are not correspondingly great. In the city of Buffalo, for the ten years prior to 1849, dysentery occurred very infrequently, never prevailing, to any extent, till the year just mentioned. Now the ordinary causes of disease, viz., changes of temperature, indulgence in fruits and crude vegetables, excesses, etc., were operative, to a greater or less extent, during these ten years; nor was there any increase in the operation of these causes in 1849. In fact, in that year some of these supposed causes were less operative than usual, owing to the greater prudence in the community in consequence of the prevalence of epidemic cholera. It is, then, clearly apparent that the prevalence of the disease in 1849 depended on some morbid agency superadded to those causes of disease which uniformly exist to a greater or less extent.

(*c.*) Taking into view the evidence that the disease takes place independently of ordinary causes existing in any and all seasons, the fact that it is restricted in its occurrence to a particular season, in a temperate climate, goes to show a special causation. The cases, the histories of which were collected during several years, (vide clinical report,) were found to have all occurred in the summer and autumnal months. As a general remark, diseases which are governed by laws restraining their prevalence thus to certain seasons, owe their origin to special causes. The prevalence of dysentery at certain times, places, and seasons, constitutes it either an epidemic or endemic disease; and

it is probably correct to say that epidemic or endemic diseases always involve in their production causes which are special in their character.

(*d.*) If it be correct to regard the anatomical characters of the disease as involving not merely ordinary inflammation, but a peculiar process, it would be most consistent with such a view to suppose this process to require for its production a peculiar poison. It is true that processes which have a special character do take place within the organism apparently independently of any special external agency. Examples of this fact are tubercle, carcinoma, etc. This consideration would be without much force were it not that other considerations show pretty conclusively dysentery to be produced by a morbid cause originating exterior to the body. Its prevalence as an endemic or epidemic may be considered to establish sufficiently this conclusion.

(*e.*) The special origin of the disease would be rendered analogically probable by the fact of one attack exempting the individual from its subsequent recurrence. The striking results developed by the foregoing analysis with respect to this point, however, must not be considered to establish this fact.

(*f.*) The facts pertaining to the condition of health at the time of attack in cases of dysentery have some bearing on the question under consideration. As a general remark it is probably true that the ability to resist ordinary morbid causes is diminished in proportion to the feebleness of the powers of the constitution, in consequence of present or past disease. This rule does not appear to hold good with respect to special causes of disease. The latter in some instances at least, are found to affect in preference persons of good health and constitution. This is true, for example, of typhoid fever. Facts seem to show that it is true of dysentery, notwithstanding it is stated otherwise by some systematic writers.* The facts developed by the analysis which has preceded these remarks, (see sec. ninth of Clin. Report,) lead to this conclusion. So also do the facts pertaining to the morbid anatomy of dysentery derived from the dissections by Dr. Finger (see foregoing section of supplement.) This being the case, agreeably to the general law stated above, it is a fair inference therefrom that the production of dysentery involves a special cause.

Assuming the causation of dysentery to be special or specific in its character, how much farther than this can we go with our present knowledge? It is plain we are ignorant of the nature of the special cause; else, its existence would not be a matter for argumentation. We are equally ignorant of

* *e. g.* Valleix.

its source, of the circumstances necessary to its development, of the mode of its diffusion, and the avenues of its ingress into the organism. But in all these particulars we are not more in the dark here than in other instances in which it is not less certain that diseases are due to special causes. All that we know of the causation of dysentery beyond the fact of the existence of an unknown special cause is, that the efficiency of the latter requires an elevated temperature. This is proved by the disease occurring during the summer or autumn, and by its greater prevalence in tropical climates.

Finally, an important inquiry suggests itself having application, not to this disease only, but to all epidemic affections, or those which arise from special causes, viz: how is science to proceed in the endeavor to discover the nature and source of these special causes? This is an important topic, and it may not be considered irrelevant in this connection to devote to it a few words.

Of dysentery, as also of any disease involving external special causes, our knowledge only embraces more or less of the morbid conditions which are effects of these causes. Of the causes themselves, their nature, source, etc., as we have seen, we know nothing. This portion of etiology remains a *terra incognita*. Scientific research has as yet scarcely made a commencement in its exploration. It is evident that we have no clue to lead us directly to the discovery of these special causes. To seek to discover them by direct means would be useless. Can nothing be done? Yes; much might be done. Let observations pertaining to topography, meteorology, etc., sufficiently comprehensive to cover all appreciable circumstances with which the causation of the disease may be supposed to have any connection, be made so extensively as to embrace numerous situations both where the disease does, and where it does not prevail. The next step is to institute a careful comparison with respect to all these particulars of the places where the disease has prevailed, with those where it has not prevailed. This comparison would show what circumstances were common to both places, *i. e.* to places where the disease had, and where it had not prevailed. It is plain that the circumstances common to both could have had no necessary connection with the causation of the disease. They are therefore to be eliminated. By this logical process of elimination, the investigation is narrowed to those particulars which are peculiar to the places in which the disease had prevailed. Now to some of these particulars it is presumable the disease sustains a relation of dependence. The next step is to institute, as respects these particulars, a comparison of numerous places where the disease had prevailed. In this comparison it is evident the circumstances to be eliminated are those which are not common to all these places, since the disease is independent of those

which are found to be not uniformly present. All particulars, then, which were present in a portion only of the places, are eliminated as having had nothing to do with the causation of the disease. The investigation by this second process of elimination is narrowed to the circumstances common to all the places in which the disease had prevailed. To some of these the disease probably stands in the relation of an effect. The problem, then, is to determine from which of these comparatively few circumstances, singly or combined, does the disease derive its origin.

What the fruits of such an investigation might be, it is of course impossible to foresee. It would not be fruitless even were the results negative, for then it would be a legitimate inference that the disease involves agencies having no connection whatever with any of the phenomena observed, and thereafter scientific research need not be retarded by attention to these phenomena, which is thus shown to be superfluous. But it is hardly probable that such an investigation would be barren in positive results. If it did not lead to the disclosure of the true source of the special cause, it would determine what circumstances exert more or less agency in directing and modifying the operation of the cause in the production of its morbid effects.

It is obvious that this plan of investigation is applicable not alone to dysentery, but other epidemic or endemic affections, and, in a measure, to all diseases; and observations made with reference to the causation of one disease would be equally available for any other, so far as concerns the external circumstances which the observations embrace.

To carry this plan of investigation into execution on a scale sufficiently large, is a project yet to be achieved. To gather together the requisite data for comparisons and the processes of elimination, in addition to meteorological and other details belonging to physical science, accurate registrations of deaths and diseases are requisite. The magnitude of the undertaking is such that it is only practicable as a measure provided for by a liberal and enlightened legislation; and it is to be hoped that the time may come, when to enlarge our knowledge of diseases with a view to lessening the mortality they occasion, increasing the probabilities of life, and enhancing its value both to individuals and the commonwealth, will be considered to be a matter as appropriate and important as any of those that appeal to the deliberations and bounty of a state or the national government.*

* It is proper to state that the plan sketched above was submitted by the writer in his report on practical medicine made to the Am. Med. Association, in 1851. The language employed in the report is to some extent adopted.

PATHOLOGY.

The view which has been taken of the causation of dysentery, determines, to some extent, the view to be taken of its pathology. The local manifestations of the disease are in a high degree marked, but is the pathology of the disease comprised in the intestinal affection? Certainly not, if a special cause be involved. After the introduction of the special cause within the organism, prior to the dysenteric manifestations, certain morbid processes must take place. In these processes consists the essential pathology of the disease. They constitute the disease, the phenomena pertaining to the intestinal affection being only its effects, or, in other words, its local expression. What is the nature, and where the seat of these primary processes? Do they have their origin in the fluids or solids? What period do they require to be completed? How is it that they stand in such an exclusive relation to an affection of the large intestine? These, and other kindred questions cannot, in the present state of medical science, be answered. To say that the processes are analogous to the chemical principle of *catalysis*, in other words to call the disease *zymotic*, is but to indulge a conjecture, however plausible it may be. As on the subject of causation we found ourselves unable to advance beyond the simple fact of the existence of a special cause, so we must here be content with the belief that the pathology involves certain inappreciable changes, the character of which is entirely unknown. The bare fact of the existence of these unknown changes is important, not in itself alone, but in its practical bearings; and it is to be considered that we are not more ignorant of the essential pathology of dysentery than of other diseases due to specific causes.

In the practice of medicine it is often hardly less important to appreciate the poverty of the science, than to avail ourselves of its resources. Good policy, therefore, not less than propriety requires that what is not known, as well as what is known, should be fairly estimated. Moreover, a just appreciation of the limits of scientific knowledge, secures a point of departure the most favorable for the development or reception of new truth.

To say that dysentery is more than a simple colonitis, involving as it does an antecedent morbid condition, of which the intestinal affection is the result, is not to depreciate the importance of the latter in itself, nor its reactions within the organism. The local lesions, albeit in a pathological sense they do not constitute the disease, but are secondary in the order of sequence, give rise to nearly all its appreciable phenomena, and the danger to life is proportionate to their magnitude. The degree and extent of these lesions

are probably proportionate to the unknown changes which precede and determine them.

The elimination of fluids through the intestinal canal is undoubtedly a very important pathological element in certain cases of dysentery. Analytical investigation shows that cases characterized by copious sero-sanguinolent discharges are peculiarly severe and dangerous. These discharges contain more or less of the component principles of the blood. The blood is necessarily the seat of serious lesions in proportion to the loss of important ingredients which it sustains. Whether the escape of the blood principles be owing entirely to the intestinal lesions, or to changes in the blood itself, is a question which can only be answered conjecturally, with our present knowledge.

The fact that symptoms of the intestinal affection constitute almost the first appreciable evidences of disease in dysentery, the prior changes determining this affection not being revealed by any marked evidences of disorder in the economy, may seem to militate against the view which has been taken of its pathology. There are, however, other instances in which the essential changes preceding the local manifestations are equally latent, for examples, tubercle, and epidemic cholera. In such instances, either the inappreciable morbid processes very quickly result in the local manifestations proper to the disease, or they are not of a character to produce other marked evidences of disorder. Which of these explanations is applicable to dysentery it is impossible to say.

In the foregoing remarks on the pathology of dysentery, as in those on the subject of causation, reference has been had especially to the disease in its epidemic form. The question arises whether in sporadic, benign cases, the same view of the pathology be applicable. The idea has been already thrown out that an essential point of difference between sporadic and epidemic dysentery may consist in the former being purely a local inflammation, while the latter involves, as has been seen, antecedent constitutional changes. I can do no more than repeat this idea in the present connection. It is, of course, entirely speculative. The discussion of the point would be likely to lead to a wider range of inquiry than comports with the actual amount of our knowledge. The question would at once arise, how far are all local inflammations not produced by exterior causes acting directly on the parts inflamed, to be regarded as local? It is customary to call such inflammations *spontaneous*, but this term implies that effects occur without causation. Morbid phenomena are never spontaneous. They seem to be so, it is true, but this is because the causes and processes upon which

they depend are unseen and unknown. The term spontaneous, applied to the origin of diseases, is only significant as expressing our ignorance of their causes and mode of development. Modern investigations appear to show that some inflammations, heretofore regarded as purely local, proceed from the presence of morbid materials in the blood. Those occurring in connection with rheumatism and Bright's disease may be cited as examples. How far continued investigations may succeed in unfolding the relations of local diseases to pre-existing morbid conditions of the fluids, cannot, of course, be anticipated; but it is clear that to a rational humoralism, under the guidance of analytical chemistry, we are to look for future developments pertaining to pathology and etiology, that shall dispel the darkness which now shrouds these departments of medical science.

MANAGEMENT.

My remarks on the management of dysentery will be confined to a few general considerations, not embracing many details, nor discussing the merits, or modes of action of the various remedies recommended in systematic works on practical medicine, or in treatises devoted specially to this disease.

It is evident that the ratio of recoveries cannot be made a test of the efficacy of treatment in benign, sporadic cases of this disease. Such cases have little or no tendency to a fatal issue. Recovery is the rule, irrespective of therapeutical measures for that end. It is probable that few cases would terminate fatally even under injudicious management. But in this disease, as in most others, our science labors under the disadvantage of not possessing the results of the analysis of a series of cases in which there was no medicinal interference. Facts of this kind, which are as difficult to obtain as they are desirable, would constitute, if attainable, the true point of departure for determining collectively and severally, the value of different modes of treatment. It is, however, plain that in the form of dysentery just mentioned, the objects to be attained by remedies are chiefly limited to the relief of distressing symptoms, shortening the duration of the disease, and, possibly, arresting at once its progress.

On the other hand, it is evident that in some severe cases of epidemic dysentery in which the disease attains to a certain degree of intensity, recovery is not to be expected. Morbid anatomy teaches us that in these cases disorganization of the intestinal mucous membranes takes place to such an

extent that restoration is almost impossible. In some instances, also, it i quite clear, although not so demonstrable, that, in consequence of the loss of a portion of its constituents, the blood is the seat of lesions not less fatal, if not even more so, than those which belong to the gravest cases of epidemic cholera. The tendency to death is as marked in these cases, as is an opposite tendency in those previously referred to. So strong is this tendency that, in a certain proportion of instances, it is vain to look for efficacy toward any plan of management.

The disease may be presented in every grade of severity between these opposite extremes.

It follows from these facts that in according success, or failure to medicinal treatment, it is necessary always to take into account the wide differences in the character and tendencies of the disease, so far as it is practicable to estimate them disconnected from therapeutical measures. This is an important consideration. It affords an explanation, on the one hand, of the fact that a practitioner may meet with few or no fatal cases of dysentery, without any right to assume, in consequence, any peculiar efficacy in behalf of his mode of practice; and, on the other hand, of the fact that another practitioner, whose practice may be far more judicious, is more unfortunate. A misfortune it truly is, because it has so happened that his cases were characterized by their gravity and fatal tendency. It explains, also, the fact that measures of treatment which at one time, or place, appear to be uniformly efficacious, prove to be quite otherwise at another time, or place.

The consideration should be borne in mind in comparing the results of one's own experience at different seasons, or in individual cases, and it enforces due qualification of the testimony of others. Mortuary statistics, too, are of little practical value, and may lead to error, if not considered in connection with the character of the cases analyzed. The apparent success of different modes of practice in the same epidemic, as a criterion for determining their relative merits, may be quite fallacious. During the progress of an epidemic a host of mild cases are likely to occur, together with a proportion, greater or less, of cases more or less severe. The ratio which cases of the character last referred to, bear to the former, will greatly affect the mortality in a given number of cases, irrespective of medical treatment.

The same caution, in short, is to be exercised in drawing deductions from facts pertaining to therapeutics in this disease as in some others in like manner distinguished by widely separated extremes of mildness and severity. In this respect it resembles, for example, scarlatina, a disease which, in its mildest form, has so slight tendency to a fatal issue that, as stated by Sydenham,

it rarely ends otherwise than favorably save by the officiousness of the physician; but, when malignant, destroys life, often, in spite of the best directed efforts to avert that result.

Have any remedies been found to exert a specific control over dysentery? No one will answer this question affirmatively. It cannot be claimed that we are able to neutralize the special cause within the organism, or arrest the primary morbid changes which constitute the disease, by any known method of medication. There is but little opportunity for a specific mode of treatment to be available in dysentery, since the first evidences of the essential morbid condition are the manifestations of an intestinal affection which speedily reaches its maximum of intensity. There is insufficient time for the operation of a special remedy between the first indications of disease and the development of intestinal process; the latter, also, being not more amenable to abortive measures of treatment than other forms of local inflammation. It is true that in some mild cases the disease appears to be arrested. We have seen that in a small number of the cases which have been analyzed, this result apparently followed the employment of opium, alone, and in combination with calomel. But considering the small number of such cases, and the mildness of the attack, it is probably more philosophical to suppose that they illustrate an abortive tendency in the disease, rather than any specific influence of the treatment. This, however, is not to deny that the treatment exerted a certain amount of favorable influence. What are the objects of treatment in dysentery? The answer to this question involves another inquiry, viz., what are the elements of the disease which occasion its distressing symptoms, and in which consist its severity and danger? These elements are chiefly comprised in the morbid process going on in the intestine, probably conjoined, in some instances, with blood lesions from the loss of certain of the constituents of this fluid. It is plain that the essential pathological condition, in other words the inappreciable changes induced by the primary action of the special cause, destroy life, not in themselves, but by means of the secondary changes, or results, which generally pertain, for the most part, to the intestinal affection. The gravity of the disease, *ceteris paribus*, is always in proportion to the extent and intensity of this affection. This being so, the objects of treatment, it is sufficiently apparent, are to endeavor to prevent, or abate the severity of the local manifestations of the disease; to relieve the symptoms incident thereto; to obviate unfavorable events connected with them, and to sustain the system through the processes of restoration. In this enumeration of objects are contained the leading rational indications of management.

The adaptation of therapeutical measures to the fulfillment of these indications involves, *first*, rational principles; and, *second*, experimental results. To what extent the latter are capable of furnishing evidence for, or against different measures, is an important point, to which remarks already made have had reference. Great value is generally attached to the apparent influence of remedies in this, as in other diseases. Writers and practitioners usually rest the claims of the particular methods of treatment which they recommend, on experience. Such and such measures have been found eminently efficacious; others have proved inefficient, or hurtful. This is the language of those who believe that they speak from a practical knowledge which authorizes positiveness of opinion, and should command the confidence of others. Let us examine this point a little farther, bearing in mind that the examination is applicable, not less to the therapeutics of various diseases, than to dysentery. A practitioner employs a certain method of treatment in a case, or a series of cases. The disease passes through its career without exhibiting marked gravity of symptoms, ending in recovery. Now, how is it to be determined that the treatment has divested the disease of severity and danger? Plainly, to demonstrate this to be the result of the treatment, it must be known what would have been the course and character of the disease in that case, or series of cases, if the treatment had not been employed. To know this is, of course, impossible. It would be only an approximation to this knowledge to have the history of another case, or an analysis of another series of cases in which the disease had been permitted to run its career without any treatment; but even this information is not available. I say this would be but an approximation to the knowledge necessary to solve the above problem, for no case, or series of cases, can be assumed to represent, in all respects, another case, or another series of cases. The liability to err in according to the influence of remedies what really belongs to the disease itself, must be apparent on due reflection. How much of this kind of error pervades medical experience, different persons will estimate differently, according to the disposition of the mind to distrust, or credit what is not rigorously proved. On the other hand, a practitioner makes trial of certain remedial measures in a case, or a series of cases, in which the disease exhibits persisting severity, and ends fatally. He asks himself how much of this severity is to be accounted for by the default of a more effective method of treatment; and may not the remedies have even exerted a positively injurious effect, contributing directly to the issue? In this instance, he has no means of determining, demonstratively, the true answers to such questions; and in a spirit of candor, he may be led to err in attributing to his mode of

practice what belongs intrinsically to the disease itself. It may seem unsatisfactory to some persons to subject medical experience to so critical an analysis as this, inasmuch as it may beget a degree of doubt which will prove inconvenient in practice; but it is due to truth that the difficulties in the way of obtaining exact knowledge in therapeutics should be fairly considered. To be satisfied with practical notions, the correctness of which is far from being established, may contribute to the comfort of medical practice, since the mind is thereby relieved of anxiety and hesitation, as well as the trouble of farther investigation, and here, in fact, is another difficulty in the way of the endeavor to arrive at the truth.

A just appreciation of the fallacies incident to experience should by no means lead to its rejection as a means of increasing therapeutical knowledge, It only enjoins the importance of receiving experimental results with caution, and due qualifications. To say that medical experience is in no degree trustworthy, would be as unphilosophical as to overlook, or depreciate the difficulties with which it is beset. The ratio of fatality, the average duration of the disease, etc., compared in different groups of cases treated by different methods, undoubtedly may lead to valuable therapeutical deductions; and a mode of numerical investigation which appears not to have received adequate attention, consists in noting the immediate apparent effects of remedies, in other words comparing, in series of cases, the symptoms directly before, and after the administration of remedies of sufficient potency to produce immediate effects either favorable or unfavorable. The ratio of fatality and the average duration, so far as they furnish evidence of the influence of treatment, exemplify the remote effects of remedies, and of the combined effects of the different remedies which enter into the treatment, not of individual measures. The direct influence of the latter can only be studied, experimentally, by means of observations embracing the phenomena immediately antecedent and consequent; and these observations, it is obvious, must be sufficiently multiplied to avoid the error of mistaking for the effects of remedies, occurrences due to mere coincidence, or to the progress of the disease.

In endeavoring to place a proper estimate on the fruits of experimental research, a broad distinction is always to be made between the general impressions purporting to be deductions from facts retained by the memory, and the results of the analytical investigation of numerous observations which have been carefully recorded. The latter may almost be said alone to constitute the basis of true experience. To say that the former is valueless, would be equivalent to a repudiation of not an inconsiderable share of prevailing opinions respecting the therapeutical operation of remedies in different

diseases. It may, however, be asserted that it is by means of the numerical system of investigation these opinions are to be confirmed, or their incorrectness proved.

With the fallacies incident to the rules of therapeutics based on experimental results alone, and the present incompleteness of this kind of knowledge, diseases must be treated, to a greater or less extent, on *rational principles*, that is to say, principles belonging to general therapeutics, applied to the management of particular affections analogically, or *a priori*. Here, too, are difficulties, and liabilities to error, but a consideration of them would open up a subject too extended for present discussion.

Various methods of treatment, it is well known, have been, and are still employed in the management of dysentery. As stated at the outset, I do not propose to treat of these methods, and the remedies which they embrace, at length. I shall notice some of the more important of them.

Blood-letting. Of blood-letting, general or local, in this disease, I cannot speak from personal knowledge. In the sporadic cases that have fallen under my observation there have not been present any indications for this remedy, and as the disease has been presented in my practice in an epidemic form, I have been deterred from extracting blood by observing that the mode of dying was by asthenia, and that the symptoms denoted this tendency so soon as the disease assumed a grave or dangerous character. In a few instances I have regretted, during the progress of the disease, that I had not employed blood-letting at the commencement. In these instances the patients were robust, attacked in full health, and, shortly after the disease commenced, there was well-marked febrile movement, the skin being hot and dry, and the pulse having considerable development and force. The objects to be fulfilled by blood-letting obviously are, the prevention of that intensity to which the intestinal inflammation might otherwise be expected to attain, and the abatement of the intensity already attained, in either case diminishing the tendency to disorganization, or a degree of severity of the local affection dangerous to life. Reasoning by analogy it would seem that in certain cases this remedy would be as appropriate as in other diseases characterized by the presence of a high grade of inflammatory action. Ordinary sporadic dysentery, however, seldom demands it, and it is a remedy of too much potency to be needlessly employed. In a large proportion of cases of epidemic dysentery, it is inapplicable on rational principles. Cases characterized by a diffusion and intensity of inflammation sufficient to overwhelm the vital forces like an extensive burn situated on the surface of the body, hardly admit of a therapeutical

measure compromising the resources of the system which will be required for the processes of restoration. It is evident, also, that after the local affection has attained to its maximum, be it greater or less in degree, the vital powers are to be sustained, rather than diminished as they must be by the detraction of blood. In short, whenever applicable, it is very early in the disease, and under the circumstances generally considered to denote the remedy in other inflammatory affections, viz., symptomatic febrile movement, with morbid increase of power in the forces carrying on the circulation, a robust constitution, and especially general polyæmia.

Keeping the objects of bleeding in view will be likely to protect against its employment in cases of such mildness that it is not required; and, on the other hand, in cases in which from the overwhelming extent and intensity of the local affection, or the duration of the disease it would be not less injudicious and attended with greater risk of injury. Certainly when we take into view the liability, in severe cases of dysentery, to rapid disorganization, and to sero-sanguinolent effusion, producing death by exhaustion, the necessity of discrimination in the use of the lancet is not less conspicuous than the importance of promptness in its use if, by means of it, we are able to guard against these results. In these remarks I have had reference mainly to general blood-letting. They will, of course, also apply measurably to local blood-letting by cupping or leeching. Leeches applied at the anus are recommended especially by French writers, in order that the blood may be abstracted as directly as possible from the vessels of the affected intestine. It is surprising that this practice has not found favor in this country, among those practitioners whose attention, in the treatment of dysentery, seems to be absorbed with the idea of congestion of the portal circle!

Purgatives. I have employed purgatives in but a small number of cases of dysentery. Prior to 1849, I had treated only mild sporadic cases, and finding that they uniformly did well without purging, I was led to think this kind of medication was generally not required. Purgatives of the saline class, have of late years been highly advocated, by different writers, in the medical periodicals of this country, but I have been deterred from making trial of them in consequence of the prevalence of epidemic cholera, more or less, in this city annually, since the year just mentioned, till the present year (1853.) Purgatives, as is well known, heretofore have been considered very important in the treatment of dysentery. Under the belief that the inflammation of the intestine was produced by the direct action of its morbid contents, and that hardened fecal matter, (scybala,) was a frequent source of

irritation, it was deemed a rational indication to endeavor to bring about free evacuations, and to persist in the frequent repetition of cathartics during the course of the disease. Saline purgatives were recommended, many years since, by Zimmerman, and more recently, by Bretenneau, and several other writers among the French.* The sulphates of soda, and of magnesia; the tartrate of potassa and soda, and the bi-tartrate of potassa, have each been recommended as the most eligible saline preparation to be used in this disease. The testimony borne by the authors just referred to, and by many practitioners in our own country, in favor of the good effect of these remedies, is very strong, and certainly entitles them to a fair trial.

The pathological views most consistent with our present knowledge do not lead us to employ purgatives for precisely the same end to which they were heretofore directed. The morbid condition of the intestinal contents is an effect rather than a cause of the local affection. It cannot be expected by these remedies to strike at the root of the disease. But the questions arise: is not the inflamed mucous surface placed in a situation the more favorable for restoration the less in quantity are the contents of the intestine? May not the presence of intestinal contents increase the local affection directly; and, indirectly, by exciting frequent, painful efforts for its expulsion? Is it not preferable to effect at once, or within a short time, by the action of a purgative, a thorough evacuation, than to allow the accumulation and constant passage of fecal and other matters along the affected intestine? Rationally these questions are to be answered in the affirmative. They lead to philosophical explanations of the salutary operation of this class of remedies in dysentery. Assuming their utility, there are, of course, certain precautions, and restrictions in their use, which are sufficiently obvious, and it would lead into too much detail to consider them. It is easy to see that purgatives may be used to an excess in this disease, and to such an extent that their direct action on the local affection would be highly injurious.

I was strongly impressed with the belief that purgatives must be occasionally beneficial in dysentery, by the facts observed in two cases which came under my notice in the summer of 1852, neither of the cases being recorded. In these cases the dysenteric symptoms persisted for many days, notwithstanding the remedial measures adopted, till, at length, several very copious fecal evacuations occurred spontaneously, after which immediately the disease subsided very rapidly. The coincidence was very striking in these

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* Valleix.

cases, and although there may be some room for the suspicion that the evacuations referred to were a sign, or a consequence, rather than a means of improvement, the latter seems the most probable supposition.

In accounting for the good effect of purgatives we find a probable explanation of the more favorable operation of those of the saline class. The abundant aqueous effusion which they produce, probably taking place chiefly in the upper portion of the alimentary canal, makes them efficient in washing away the contents of the large intestine, with but little drastic effect upon the latter.* It is possible, also, that the effusion may sometimes be useful as a mode of depletion.

Some practitioners have employed large enemas, filling the large intestine with liquid by means of a flexible tube attached to the syringe and carried up to, or above the signoid flexure, in order to effect removal of the contents of the bowel. This must be less effectual than the successful operation of saline purgatives, and the introduction of the tube must be painful, and expose the inflamed surface of the rectum to injury. Theoretically, purgative remedies are to be preferred.

Mercury. Calomel is sometimes given as a cathartic in dysentery. It is also frequently prescribed under the supposition that it exerts a remedial influence in this disease, irrespective of its operation as a purgative. With a view thereto it is usually given in combination with opium.

A portion of the cases, on the analysis of which was based the foregoing clinical report, were treated with calomel and opium, and I have endeavored to institute a fair comparison of the cases in which this treatment was pursued with the cases treated without mercury. The results of this comparison, and the conclusions deduced thereon, are given in the report, (see section twelfth.) So far as these cases are concerned, the facts do not afford support to the opinion that mercury exerts any marked remedial influence in dysentery.

Mercury is supposed to possess a power antagonistic to local inflammation

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* This statement with respect to the operation of saline purgatives is undoubtedly true if this operation depend (as has been maintained by M. Poisseuille, Liebig, Pereira, Golding Bird, and others,) on their causing an *exosmosis* of the watery portion of the blood. This view of the operation of saline purgatives has lately been called in question by Dr. Headland (prize essay on the action of medicines.) Dr. H. thinks that, like other cathartics, (castor-oil, etc.,) they are absorbed into the blood, and afterward eliminated. If so, the aqueous effusion may take place from the large intestine.

wherever situated. Assuming this supposition to be well founded, it is reasonable to presume that the remedy may affect, more or less, the inflammatory element in dysentery. It is possible that the analysis of a larger collection of cases might develop some proof of the correctness of this presumption.

It is, however, believed by some practitioners, that mercury is in a more special manner useful in this disease. This belief is based on pathological notions which would be hardly worthy of notice, were it not that they are recognized in some modern systematic works on practical medicine. The notions referred to are, that dysentery has some dependent connection with suppressed secretion of the liver, and congestion of the portal system of veins; and that mercury, by exciting the secretory action of the liver, relieves the congestion, and, consequently, the dysenteric affection. With respect to this view of the pathology of dysentery, it is only necessary to say that the premises are assumed without proof; and, admitting their correctness, we have no evidence of that connection between them which the reasoning requires. That suppression of bile is one of the primary events in the pathological history of the disease, is not ascertained; that portal congestion is a consequence of such suppression is a mere supposition; and that portal congestion is adequate to the production of dysentery is opposed by the well known consequences of this congestion when it is certain that it does exist.

Fanciful as is this hypothesis, it is the basis of that confidence in the efficacy of mercury in dysentery which has led practitioners, in some parts of this country, to place their chief reliance upon it in the treatment. Fortunately for the success of the treatment, in order better to secure the special operation of the mercury, it is generally given in combination with opium! With preconvictions according to mercury whatever efficacy pertains to the combination of calomel and opium, it is not surprising that experience appears to furnish evidence of the truth of this hypothesis.

Opium. From an early period in the history of medicine, opium has entered into the treatment of dysentery. It would be difficult to find any authority in the medical literature of past ages, for the disuse of opium in this disease. The only difference of opinion has related to the degree of reliance to be placed on it, and the liability to injurious effects if given largely. Medical opinions and practice, at the present moment, exhibit the same agreement and differences. Almost every practitioner prescribes opium, to a greater or less extent, in dysentery; some regard it as the chiefly important therapeutical agent in the treatment, and others look upon it as simply

adjunctive. It is consequently employed much more freely by some practitioners than by others.

The immediate apparent effect of this remedy is often striking. Sometimes it appears promptly to arrest the disease. Instances of the latter description, however, are not sufficiently numerous to warrant the inference that the remedy has an efficacy which can properly be styled specific. We can readily account for more or less relief of the distressing symptoms of dysentery — the tormina and tenesmus — by the anodyne properties of opium. It is serviceable in another mode, in which, perhaps, consists its chief efficiency, viz., keeping the inflamed part in a state of quietude. It does this by arresting the peristaltic movements, and by relieving the tenesmus so that the patient does not feel impelled to make frequent efforts to evacuate the bowels. The remedy may exert a curative power in other modes which, with our present knowledge, are not understood.

To secure the ends just stated, opium must be given in doses sufficient to produce a decided impression. Experience teaches that the quantity requisite to produce the desired effect differs widely in different persons, and in different diseases, irrespective of pain. This is a very important practical point. A dose of opium which affects one person in a sensible manner, has little or no apparent effect on another person under similar circumstances; and in some diseases in which pain is not a prominent symptom, there is an extraordinary tolerance of this drug. The latter appears to be true of dysentery. Opium may be given, in some cases, at least, of this disease, in large doses without any manifestations of its narcotic properties; and it *must* be given in large doses to secure the desired remedial effects. I have known twenty-four grains of the sulphate of morphia to be taken in twenty-four consecutive hours, by a patient not habituated to the use of opium, with no evidence of narcotism, nor could this quantity be diminished without marked aggravation of the symptoms.

Bearing in mind the differences in susceptibility to the remedy, it is of course highly important to avoid any risk of too great narcotic effect. This is to be done by increasing the doses, by degrees, up to the requisite amount, allowing intervals between them sufficient to estimate the effect of each dose.

Taking into view the *modus operandi* of opium (so far as it is explicable) we can understand why its good effects may be more marked, after free purgation. The intestine is more likely to remain in a quiescent state in proportion as it is free from fecal contents to excite peristaltic movements, and provoke acts of defecation.

The different preparations of opium may be employed according to

circumstances. Those which are most prompt in their action are preferable, in order that the effects of each dose may be better estimated. Concentrated preparations are also frequently retained, when those more bulky are rejected by vomiting. The salts of morphia are particularly eligible in cases in which irritability of the stomach exists. Opium in tincture, or aqueous solution, and the salts of morphia, given by enema, often have a very happy effect. Frequently this mode of administration is ineffectual in consequence of the speedy expulsion of the enemas. This is very apt to occur in the course of the disease after their frequent repetition; and sometimes, under these circumstances, to persist in their use is injudicious, the irritability of the rectum being increased by them, and the efforts of defecation rendered more frequent and painful than would otherwise be the case.

Other injections are employed in dysentery. A strong solution of the nitrate of silver sometimes appears to allay the tenesmus, and render the dejections less frequent; in other cases it produces no such effects, and sometimes occasions severe pain. As a local application to the inflamed mucous surface, its action must of course be very limited, especially if the injection be made into the rectum alone. Carried higher up into the intestinal canal by means of a long tube, it may be brought into contact with a larger portion of the affected surface, but even by this mode its action must still be limited. I cannot speak of the latter mode from personal trial of it. Creasote, in mixture, appears, in some instances, to allay the irritability of the rectum. Strong testimony is borne, by numerous practitioners, to the relief afforded by large enemas of simple cold water, repeated more or less frequently.*

Astringents. Various astringent medicines are in common use in dysentery, viz., the acetate of lead, the nitrate of silver; and, of vegetable astringents, a great number such as tannic acid, rhatany, kino, catechu, etc. These are very rarely, if ever, relied upon to the exclusion of other remedies, and they are usually given in connection with opium. It is, therefore, difficult to estimate the effect which belongs to them separately. The impression formed from my own experience is, that they are comparatively of small utility. It is desirable that the utility, or non-utility of this class of remedies should be determined, because, in the first place, if useful, it is important not

* In a case, coming under observation since this was written, in which hemorrhage from the bowels occurred after the dysenteric symptoms had greatly diminished, enemas of cold water appeared to produce a decided effect in arresting the flow of blood. They were also grateful to the patient.

to deprive ourselves of their aid; and, in the second place, if not useful, although directly they may not be injurious, they are likely to prove so, indirectly, by appropriating a certain portion of that dependence which otherwise we should place on remedies more efficient for good.

A host of remedies might be mentioned which have been recommended in dysentery, and which do not fall within the foregoing classes; such are belladonna, stramonium, aconite, balsam of copaiva, ipecacuanha, nux vomica, etc., etc. I have already disclaimed, for these remarks, a scope and particularity embracing an examination of the evidence in support of the efficacy of these various remedies, or a discussion of their *modus operandi*. I shall therefore pass them over without farther notice.

Revulsive applications. These are frequently employed in dysentery. Blisters to the abdomen, and to other parts of the body; sinapisms and stimulating liniments, are thought, by some practitioners, to be highly useful. My experience is limited to sinapisms and liniments. These are evidently subordinate measures, to which not much importance is to be attached in controlling the progress and issue of the disease. Rationally considered, more active counter-irritation is of doubtful expediency.

Local soothing applications, viz., fomentations and cataplasms, belong among the minor adjunctive measures of treatment, having some value.

Supporting measures. In cases of dysentery characterized by the extent and intensity of the local affection, the latter tending to disorganization, or ulcerations, and in cases in which, from feebleness of constitution, or other causes, there follow prostration, and a tendency to a fatal issue by asthenia, denoted especially by frequency and feebleness of the pulse, supporting measures become very important. Under such circumstances, after the disease has reached its maximum, these measures, in fact, constitute our main reliance, the indication being to sustain the powers of the system through the processes of restoration.

The supporting measures consist of tonics, diffusible stimulants, and nutriment. Inasmuch as the effects of tonics are too slowly produced to accomplish much within a short period, they are far less important than stimulants and nutriment. I have witnessed very striking apparent effects from the use of spirits in some grave cases of dysentery. In one of the cases in the collection analyzed, in which the pulse remained at 140 for several successive days, it rapidly decreased in frequency, other symptoms at the same time evincing improvement, under the free administration of brandy,

the patient being a female wholly unaccustomed to the use of spirituous beverages. In two cases, not embraced in the collection analyzed, in which the disease was graver and more persisting than in any other instances ending in recovery that have ever fallen under my observation, the patients were apparently saved by supporting measures carried out with boldness and perseverance. In one of these cases, the patient, a temperate man, took on the day before there occurred a distinct amelioration of symptoms, twenty-four ounces of brandy, in doses of a half ounce half-hourly. In this case it was observed that if the interval between the doses was prolonged, as it was sometimes in order to observe the result, the pulse became more frequent and feeble. The vital forces were apparently sustained, and the patient carried through the disease by vigorous unremitting stimulant treatment.

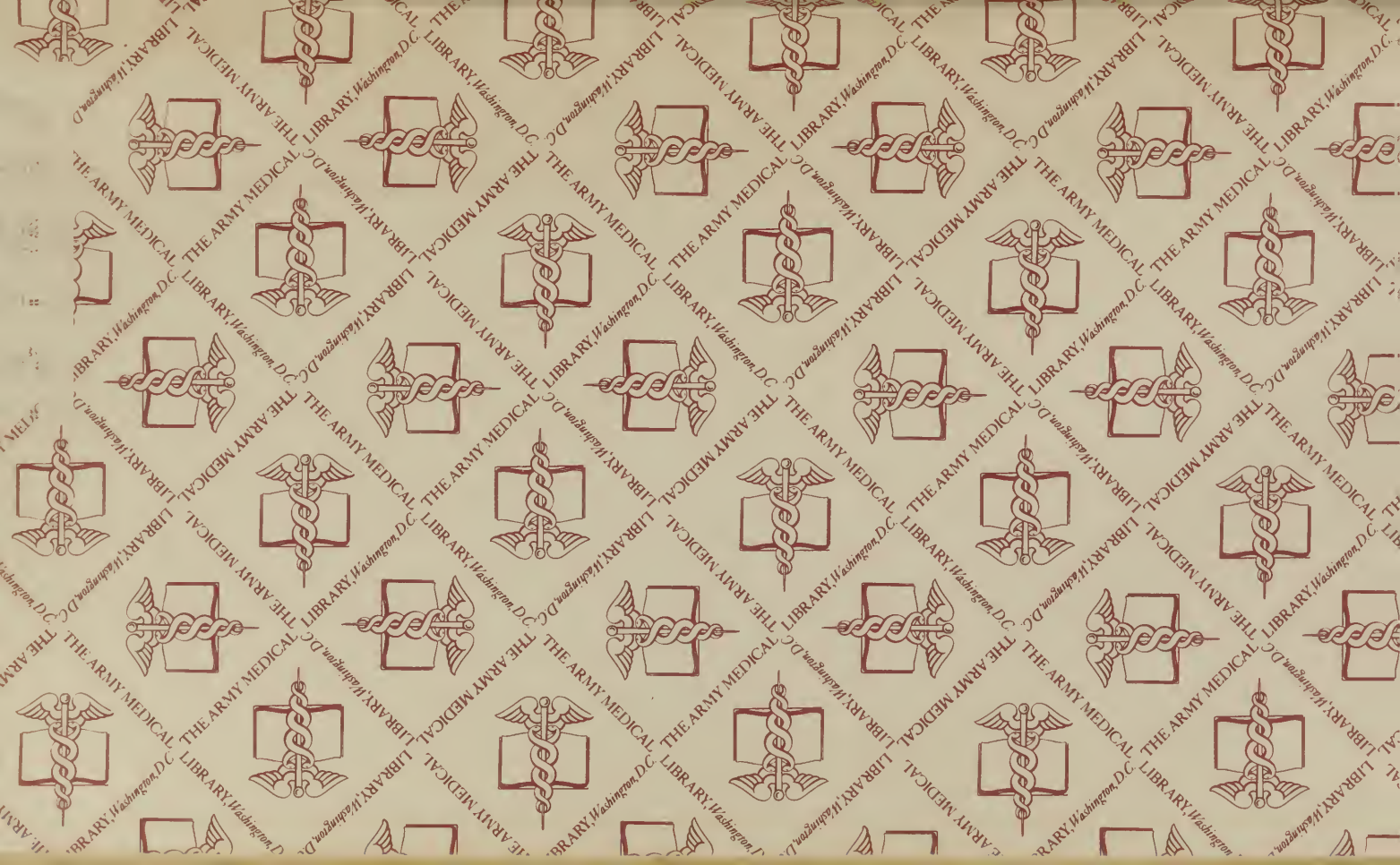
The quantity of spirits to be administered in a given time; the doses; the frequency of their repetition, etc., etc., are of course, to be varied in different cases according to circumstances. These are among the details upon which I do not propose now to enter.

The systematic administration of nutriment is an important part of the supporting measures. It is to be given regularly, and by persuasion if the patient be disinclined to it. The kind, and proper preparation of the nutriment are all important. It should be concentrated, *i. e.*, contain as much nutriment in as small bulk as possible, and, considering the seat of the local affection, (the large intestine,) the importance of its being so entirely assimilable as to leave a small quantity of fecal excrement, is obvious. The animal essences, or concentrated broths, with milk, and small proportion of some farinaceous substance, will unite the alimentary principles necessary for combustion and nutrition.

I am convinced that with a due appreciation of the importance of supporting measures, on the part of the practitioner, together with promptness, boldness, and perseverance, in their use, and a careful supervision of all the details which they involve, patients are sometimes carried safely through this disease, when the gravity of the affection is such that a fatal termination would otherwise be inevitable.

To recapitulate, in a few words, some of the more important of the practical points involved in the foregoing considerations: rational principles, and what light is afforded by experimental knowledge, lead us to regard opium as by far the most valuable of the remedies employed in the management of dysentery; but to secure the full efficiency of this remedy, in this disease, it must be given in doses sufficient to fulfill the indications which it is designed to meet, adapting quantity and modes of administration to the peculiarities

of individual cases, and, at the same time, observing due precautions in it use. Blood-letting, it is probable, is useful in some instances, but it is to be employed with discrimination, and cautiously graduated by the circumstances which indicate it. Purgatives, especially saline, are frequently important by way of preparation for the good effect to be expected from the use of opiums Astringents, and the numerous remedies supposed to be useful in this disease, may be serviceable to a greater or less extent; but, relatively, they hold the position of auxiliary measures, and their employment should not detract from reliance on those which are more efficient. Finally, after employing means to abate the intensity of the disease, and dispose to its resolution, the chief object of the management in cases which resist these means, is to sustain the vital forces, with the hope of prolonging life, and developing power to carry on and complete the processes of restoration.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